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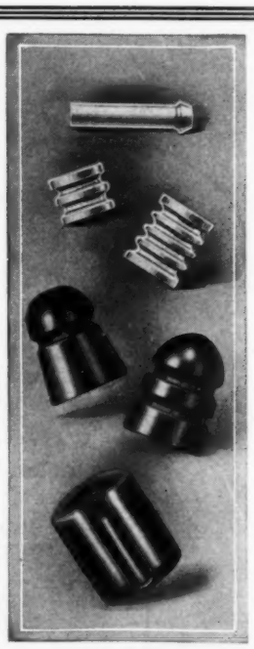

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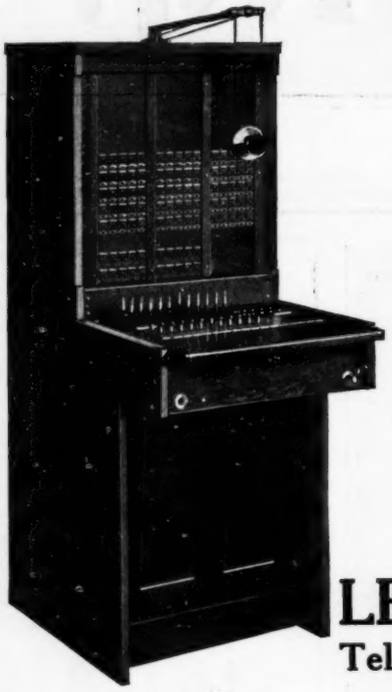

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EFFECTIVE METHODS OF BUILDING PUBLIC GOOD WILL

The Rochester (N. Y.) Telephone Corp. in accordance with its record for being enterprising and strictly up to date, is participating in a movement to promote a cooperative course of public utility lectures in the Rochester high schools. As a means of developing desirable public relations this seems to be an excellent plan.

Any method which will popularize service companies with the young people in the public schools, and familiarize them with utility problems, is a step in the right direction, for the high school students of today are the business men and the housewives of tomorrow.

All of the Rochester service companies —telephone, gas, electric, railway, telegraph—have united to supply an instructive lecture, illustrated with moving pictures, covering each utility service, to the schools, and the results have been most gratifying. "Serving Rochester" is the title of the series, and the students have shown a keen interest in the demonstration.

This is an ideal way to build up good will in a community, and should bear fruit in a most substantial way.

* * * *

Everybody concerned—both the public and the service companies—now realize that there must be understanding and cooperation between the two if there is to be continuing good service. In order to insure that understanding and cooperation service users must know more about the company's operations and its problems, and it is the plain duty of the company to educate the public along these lines.

Without doubt most of the political attacks on utilities would fail if the public were so educated. In fact, the chances are the attacks would not even be commenced, for the average politician is not likely to start a fight on a utility favorably known to the people. Nine times out of ten the politician counts on the ignorance of the people to put over his schemes, and relies on that ignorance when he raves about "fighting the corporations in the interest of the people."

* * * *

Whenever there is a fight over service rates the political interests make it expensive for the defending company, and the added expense eventually falls on the consumers. The public seldom understands this. It is an incident that the politicians do not talk about, but it is a fact, nevertheless.

The New York Edison Co., for instance, will spend $3,000,000 to defend the suit brought by Mayor Hylan in the name of the public, and the public will have to foot the bill in the long run.

* * * *

If service users were aware of these simple facts they would soon show the politicians that their attacks on utilities were boomerangs in their effect, and served no useful purpose. There is a big difference between honest, constructive regulation and demagogic attacks for political reasons.

Service companies which adopt plans like the Rochester movement to familiarize the public with utility work are establishing a reserve of good will among their patrons that is bound to prove extremely valuable in coming years.

* * * *

A lecturer to a class of journalism was recently telling the embryo newspaper men how and where to collect news items, and made the point that the local telephone office is one of the most fruitful sources of information that enable the news-gatherers to fill their columns. The instructor had in mind particularly the smaller city.

According to the theory which he presented, the local telephone man is well posted as to what is going on in his town, and many times is the first to learn of important events, especially casualties, like accidents, fires, storm damage, deaths, etc. Therefore, urged the teacher of young reporters, newspaper men should keep in close touch with the telephone fraternity, and thereby be able to obtain for their respective publications early information about important happenings in the community.

This is all very true, and it suggests an opportunity for the telephone man to boost his own business. Good rules work both ways, and if the newspaper depends on the telephone man for much of the material which goes into its product—namely, news—the telephone man ought to be able

to depend on the local newspaper for help and support when they are needed.

Reciprocity and cooperation underlie most business relations, and the tactful telephone man will be able to obtain many return favors from the newspaper he helps—and quite rightly, too.

* * * *

This applies, of course, especially to companies in smaller communities. In the big cities the newspapers have large organized news services and do not depend so much on utility companies for "news tips." There the shoe is on the other foot, and the public service companies maintain press bureaus and publicity experts to get utility information into the press.

Large city papers always have a surplus of matter to handle, and it is difficult to obtain much space in their columns—barring gun fights, murders and scandals; hence, the publicity staffs of large corporations.

In the smaller cities, conditions are more favorable for telephone companies to get publicity in the local press. As the journalism teacher made clear, in such communities the newspaper man must depend on close contact with the telephone office for much of his news in the territory covered by its lines, and this gives the local telephone man an admirable chance to establish friendly relations with his home town newspaper.

* * * *

Two principal factors that can do much to handicap service companies today are hostility on the part of the public and inefficient management. Either one can destroy a utility business, but, fortunately, there is no good reason why either should be permitted to exist. The right kind of work can change a misinformed, hostile public opinion to an informed, friendly sentiment. Good management can replace bad management.

It follows most naturally that an important feature of good management is seeing to it that friendly public relations are established and properly conserved.

COMING CONVENTIONS.

Pennsylvania, Western District, Conneaut Lake Park, July 23 and 24.

Indiana, Indianapolis, Claypool Hotel, September 23 and 24.

United States Independent Telephone Association, Chicago, Sherman Hotel, October 13-16.

The Functions of an Executive

Organization the Secret of Business Success—How It Is Brought About by the Real Telephone Executive—Delegation of Authority and Responsibility to Subordinates—Paper Awarded First Prize in General Division of Prize Contest

By Frank E. Bohn,

Vice-President and General Manager, The Home Telephone & Telegraph Co., Fort Wayne, Ind.

In the telephone business there is opportunity, yes, necessity for executive work, from the chief executive down the line to the supervisor in the operating forces, the foreman in the plant, or the head stenographer in the office. It is true that little of it exists in some companies, except in the general manager or chief executive, but an examination into the condition of affairs in such companies will, in every case, reveal the need of it.

Little of it may be required, as compared with the amount of personal work, in those lower down the scale, but, as we go higher up, the personal work should become less and less and the executive work more and more, until we get to the top, where personal work should be reduced to a minimum, and, in a large organization, to a very small minimum.

The secret of success in any business is organization. This is just as true in the telephone industry as in the manufacturing or merchandising industry. The smaller the particular business, the less it may exist without serious consequences; and the larger, the greater its importance. In fact, big business today is the result almost entirely of the organizing ability of human genius. It is the executive who has created big business organizations which today are marvels of near perfection.

Ofttimes in the Independent telephone industry and, most especially, among the smaller companies, organization is lacking. Real executives are too few. Much attention is paid to details and intensive management and too little to organization.

"The Real Executive," Says Mr. Bohn, "Is Constantly Solving Big Problems and, Therefore, Makes an Effort to Reduce His Personal Work to a Minimum."

An efficient organization, intact and built up by executive genius, can meet almost any emergency. The outside telephone plant might be wiped out by a sleet storm, or the exchange burned by a fire, but an efficient organization could soon bring order out of chaos, whereas with no organization, as such, the task would be next to impossible. A catastrophe which might destroy the human machinery through which the executive works and operates, the organization which took years of effort and experience to build up, would, indeed, be most serious.

An efficient organization means that all those connected with it, from the head down to the foot, should work together effectively to accomplish the purposes of the enterprise. Although those bearing the chief responsibilities may be called upon for the performance of the bigger tasks, the intelligent cooperation of each employe, no matter how humble his position, is essential. Effective work must be secured from each worker, and here is the place where the executive performs.

The telephone manager, who is so absorbed in the details of his business, who is literally "working himself to death" in doing a lot of things that should be entrusted to others, is a poor executive. No one, whether he be the chief operator or the manager, can do a job justice if he is loaded down with details to the point where his brain is fagged at all times.

One of the chief qualifications of a successful executive is mental ability. Many

persons can be found to look after details, routine and administration, but the man with brains is scarce. Brains initiate ideas and are the greatest of all factors in any business. However, if one overtaxes his brain with non-essentials, insignificant things that others should be doing for him, when he is confronted with the larger problems he finds himself in a state of mental fatigue. Mental fatigue is an insidious poison that infects and saps the wellspring of thought and impairs the normal processes and functions of the intellect.

The degree to which an executive attains success depends largely upon his ability to keep the proper perspective, to discriminate between the things that are important and those that are unimportant, to give his attention to essentials and to gather and weigh facts.

In the telephone business it is important that the telephone manager visualize the future. There is no business in which "looking ahead" has been and will continue to be so necessary as in the telephone business.

He must train his subordinates also to look ahead and to think and study the business, especially the problems of their particular work, encourage them to read the trade journals, such as TELEPHONY, and to keep pace with the development of the telephone art. Too many so-called executives think they are too busy to do these things themselves, let alone encourage others to do so. But they could not rightfully be called executives.

I have seen cases in the telephone business which are pertinent examples. I have in mind a particular instance where the general manager kept himself in such close touch with the details of the business and every-day routine that little escaped his attention. The property was, indeed, intensively managed. At first the business was quite successful, earnings were most satisfactory, and the service pretty good.

The company grew and as it grew the telephone art also grew and developed. However, this man was so loaded down with increasing duties that he kept his nose more closely than ever to his desk, with the result that he had little or no time to keep in touch with improved methods, devices, equipment, apparatus, etc. It is true he employed an assistant here and there, promoted a worthy fellow to a position of responsibility, but, on the other hand, he gave him little or no authority with it.

There was no organization as such. The service deteriorated; the employes grew dissatisfied; the public became antagonistic in its attitude toward the company; earnings decreased; the plant grew to be inadequate, the equipment and facilities obsolete, and, withal, a most serious situation resulted. There were no operating rules enforced, no schedule of wages in effect.

Discipline was at its lowest ebb. Cooperation was a thing unheard of among the employes, and quarrels between A and B operators, local and long distance forces, inside and outside men, were an every-day occurrence. Jealousy, with all its attendant ills, flourished on all sides. Such a thing as an esprit de corps was, indeed, lacking.

Public relations were bad. Telephone service in many cases following an ordinary storm was not restored for many days. Aerial cable trouble in abundance was frequent following a rainy spell, while "shorts" and "grounds" in the open wire caused by high winds or the branches of trees were always present. Open lines, following an electrical storm, showed up in astounding numbers.

All of this the public had to stand for because, as the city grew and the demand for telephone service increased, the one-man organization attempted to continue as such instead of developing into an efficient organization of many executives, each with the proper delegated authority corresponding to the responsibility of the office.

What finally happened and how the public eventually arose in its wrath to insist upon its rights and how it got them is another story which time and space unfortunately, will not permit here. This case is cited as one of many to prove what the lack of organization will grow into. Suffice it to say, therefore, that organization of the proper kind finally corrected the situation and solved the many problems induced by a lack of it.

The measure of the greatness of any organization is its ability to grow with its opportunities. The real executive realizes this, and, as a result, builds accordingly.

If the manager in the case cited had only appreciated the significance of this, no doubt, a different story could be told. Had he resisted the temptation to load himself up with additional routine or administrative work, had he rather forced himself to unload such work as his company grew, an organization equal to the occasion would have been the result and himself the direct cause.

The executive endeavors, first of all, to pick men and women who are fit and qualified for their jobs. He may make his mistakes, but he gradually builds up his organization of the right kind of material, those who prove to be unfitted falling by the wayside.

He goes further than this, however, for, no matter how careful he may be in his selection of the right kind of material, he knows that, unless he delegates certain authority and the corresponding responsibilities to others in accordance with the functions of the business, his organization will be of little or no value in effectiveness. Titles mean nothing unless the responsibility that their meaning conveys is coupled up with the corresponding authority and there is the proper respect for that authority—respect most especially by the superior. Too often this is lacking or its importance minimized.

Of what value to an organization is the chief operator if the manager allows the supervisors or operators to bring their troubles to him before first consulting their immediate superior? If he corrects them directly instead of working through his chief operator? She is chief operator in name only, and little should be expected of her.

Of what use is a supervisor if the chief operator does not respect her authority, as the manager should respect that of his chief operator?

"Men and Management" is a subject that has been repeatedly emphasized by President F. B. MacKinnon of the United States Independent Telephone Association in the past few years. Upon these two elements depend to a very large extent the success or failure of a telephone company.

"Poorly managed" is a phrase frequently heard at state conventions and often read in state commission orders. In fact, a typical example of this kind appears on another page of this issue.

The term, "Management," includes a number of factors; and one of the most important is the executive—the person entrusted with the responsibility for carrying out the company's plans, either as a whole or as a department.

"The Functions of an Executive" is the title of the paper written by Frank E. Bohn, vice-president and general manager of the Home Telephone & Telegraph Co., Fort Wayne, Ind., which was awarded first honors in the executive division of "Telephony's" prize article competition.

Mr. Bohn has been engaged in executive work for many years. A graduate of Williams College and Purdue University, he entered the employ of the Perfection Biscuit Co., Fort Wayne, Ind., resigning as sales and office manager in 1907 to go with the Home Telephone & Telegraph Co. From 1913 to 1919, he was assistant general manager and from 1919 to 1923, secretary and general manager, when he was placed in complete charge of the company as operating vice-president.

The past few years have been busy ones with the Fort Wayne company, involving the complete rebuilding of the plant and its financing. And that this has all been successfully accomplished reflects great credit upon the functioning of the company's executive organization. Mr. Bohn's paper will well repay careful reading and consideration by all who occupy executive positions or aspire to them.

A so-called executive will soon undermine the authority of his lieutenants if the privates are constantly receiving orders, possibly contrary to those of their superiors, from him. The real executive, whether he be a manager, plant superintendent or chief operator, respects the authority of his subordinates as strictly as he expects respect for his authority, because he knows the value of such a policy and the serious consequences if it is not followed.

One of the most successful means of creating interest, loyalty and initiative in a subordinate is strictly to respect his or her rights which go with the position he or she occupies in the organization. As I said in the beginning, each person in the right kind of an organization, except the smallest unit, has some executive work. It is true his executive work may be small in comparison with his personal work, but it is most important.

The successful manager realizes that the difference between himself and the foreman or supervisor is one of degree rather than kind, and, therefore, we find in his organization lieutenants who, in turn, are executives and who, again, have entrusted to their subordinates certain executive functions.

The real executive is constantly solving big problems, and, therefore, makes an effort to reduce his personal work to a minimum and to find some one upon whom to unload it. He does not wonder whether he can do this or that job better than a subordinate, but rather if there is some one in his forces besides himself whom he can get to do it at all.

If there is no one, no time should be lost in getting some one who can. The chances are, however, that, with the proper coaching and the delegating of the necessary authority, some one can soon be found who will measure up to the task. The man who says, "I would rather do this task myself, for then I shall know it is done right," is no executive. He does not know how to choose and train men and get the best out of them.

The average employe likes responsibility, provided the corresponding authority goes with it. When he realizes that his services are vital to the successful conduct of the business and that the responsibility of performance is strictly his, he will quickly respond and give his very best. On the other hand, one of the easiest ways to destroy his interest, to breed discontent, is for his superior to fail to respect his authority.

Upon the executive rests not only the responsibility of leadership, but the further responsibility of training others to follow his lead; in other words, training his subordinates, in their turn, to be leaders. He must enforce discipline; but in enforcing discipline, he must not sacrifice sympathetic understanding of the problems of his employes, for without their confidence and loyalty he is helpless. He should have or take time to initiate ideas and define policies. He should be ever alert to improve and develop the business, cut costs and get efficient work out of his subordinates.

It is he who must successfully meet emergencies, inspire enthusiasm and confidence, and do many other important things which require the use of his brains and larger capabilities. He must keep in mind always that his example should be one worthy of emulation, his devotion to the interests of the company pre-eminent, and his justice to employes and subscribers alike unquestionable.

Now, what are the results of the proper functioning of the executive?

We have a smooth-running organization, made up of loyal, satisfied and interested employes, working together for one purpose—the success of the business. Each takes pride in his job and has time to create improved methods or apparatus, instead of being held down to a desk so closely engrossed in details that he can not see farther than his nose.

Ideas are the product of a creative brain, of the imagination. Ideas are worth, sometimes, untold sums in dollars and cents. It is not the "whale for work," the man who "eats" detail, who produces new ideas. His brain is too busy with little, routine affairs to have time to think about bigger things. When necessity compels him to, the chances are that he will find himself too tired fighting a mass of detail or too much engrossed in it to give his imagination a fair opportunity to assert itself; nor can he fairly analyze the idea of another to determine its worth.

Of course, it is to be conceded that the larger the company, the greater the need for executive work. But I care not how small the telephone company, there is much opportunity for it. Let the manager manage, the foreman boss his gang, and the chief operator run her forces—and we will accomplish much more than if executive work, as I have endeavored to explain it and as I see it, is lacking.

In the larger company it is well to divide the employes into four or more principal groups, which we also sometimes find of advantage in some of the medium-sized companies. These four groups are formed by organizing along functional lines and are those constituting the commercial department, the traffic department, the plant department, and the accounting department. Each is responsible to the general manager or operating official.

Further subdivisions may be found necessary for the very large companies. For example, much of the engineering which, in the smaller company, can be done by an engineer under the direction of the plant superintendent, in the larger company can be best done under the direction of a chief engineer, reporting directly to the general manager.

The office of president and general manager in some companies, depending on size, may be separate. In such cases, of course, the latter reports to the former. A staff for the treasurer may be necessary for some of the very large companies, whereas, with the smaller one, this function can rest with a single individual, or the duties of the office be combined, for example, with those of the general manager or secretary.

So we may have an organization, no matter how small or how large the company and organization is the result of executive action.

True Fundamentals of Management Not Understood.

For various reasons a number of small properties are being offered for sale. In some instances it is because the owners have become discouraged on account of being unable to grasp the true fundamentals of the telephone business, and whose 20 years of labor are in danger of being lost for the cimple reasons that they never were really in the telephone business, in the right way.

Those men complain that the business never has been any good, and that it is going backwards.. They have never put any money back into the plant, either from earnings or additional capital, so that deferred maintenance has reached a point where the original investment has been entirely absorbed in physical depreciation.

Their rates have never been sufficient to provide for the requirements of a well-managed company, and the service has not been of a quality that would warrant higher rates. In short, they have made a failure of the business and are anxious to get out.—J. G. Ihmsen, vice-president and general manager, Up-State Telephone Association of New York.

Vote to Change Company Name and Install Automatic

The stockholders of the Tuscarawas County Telephone Co., of New Philadelphia, Ohio, recently voted to install automatic equipment in New Philadelphia and to change the name of the company to the Ohio Cities Telephone Co.

The stockholders also voted to pay the old bonded indebtedness by issuance of 6 per cent bonds and changing the common stock from $100 a share face value to preferred stock with a face value of $20 a share calling for a 7 per cent cumulative dividend. The indebtedness for which the bonds are issued is approximately $400,000.

Fine District Meeting at DeKalb

Splendid District Meeting Held by Illinois Telephone Association at DeKalb, Ill., on June 17 — Exceptionally Interesting Program Carried Out, Department Established by Association for Handling Transmission Problems

The June district conference of the Illinois Telephone Association was held at DeKalb, Ill., on Wednesday, June 17. This meeting was notable because of the great interest and excellent program and because of the novel plan followed by the association in the arrangement of the separate conferences.

The conference of telephone executives was held in Chronicle Hall in the forenoon, the traffic conference was held in Peck's Hall in the forenoon, and both adjourned at noon to meet with the Kiwanis and Rotary Clubs of DeKalb in a community luncheon and sing at the Innovation Grill.

At the executives' conference a very cordial and well-worded address of welcome was given by J. C. Joslyn, secretary and general manager of the DeKalb County Telephone Co. Mr. Joslyn stressed the importance of cultivating the interchange of ideas between the executives of telephone companies, and expressed the gratification of the DeKalb County Telephone Co. at being the host, for the first time, to a district meeting of the Illinois Telephone Association.

A very able presentation of the value of membership in the Illinois Telephone Association was given to those present by Vice-President A. R. Patterson, of Streator, who presided at the conference in the absence of President F. A. Norris of Monmouth. Mr. Patterson's work as chairman of the membership committee of the association has resulted in a very substantial addition to the list of member companies, and he is one of the most enthusiastic proponents of telephone association work in Illinois.

Following his address a talk on "The Operating Results of Present Telephone Rate Schedules in Illinois" was given by Jay G. Mitchell, secretary-treasurer of the Illinois Telephone Association. This talk was based upon an analysis of the 1923 reports filed with the Illinois Commerce Commission by the telephone companies of the state, and was illustrated by diagrams thrown on the screen by stereopticon. A very interesting and profitable discussion of the entire subject followed.

At the operators' conference conducted by Miss Esther Sorensen, the association's travelling chief operator, a number of interesting papers were presented, of which the following is a partial list:

"Relations of a Toll Center With Her Tributaries," by Mrs. Marion Kilday, Rochelle.

"Completion," by Miss Agnes Bruins, Freeport.

These papers provoked a very lively discussion and were followed by an enunciation drill and discussion of various mechanical devices and recommendations pertaining to telephone operating and observing of service.

At the noonday luncheon Vice-President A. R. Patterson presided. There were approximately 150 places taken, and everybody joined in some community singing led by the pianist and song leader of the DeKalb Rotary Club. The luncheon was opened with the Selkirk grace, after which J. C. Joslyn, secretary and general manager of the DeKalb County Telephone Co., extended greetings to those present in behalf of local interests.

The address of welcome was delivered by J. E. Lindstrom, mayor of DeKalb, followed by a brief talk on "The Magnitude of the Telephone Industry" by Jay G. Mitchell, secretary-treasurer of the Illinois Telephone Association, Springfield.

In a happy vein Mr. Mitchell then introduced the speaker of the day, H. F. Crunden, of Chicago, who spoke most eloquently on "Assets of an Ideal Community."

Following Mr. Crunden's eloquent address, the joint conference adjourned to meet in Chronicle Hall, and the following program was presented:

"Local Operating," by Mrs. Katherine Johnson, Park Ridge. This address was read by J. F. Risser, general superintendent, Des Plaines Telephone Co., in Mrs. Johnson's absence.

"Contribution of Women Employes to the Public Relations of Public Utility Companies," by Miss Theresa Carroll, Springfield.

"Cooperation Between Manager and the Traffic Department," by T. F. Sargent, auditor, DeKalb County Telephone Co., Sycamore.

"The Application of Boy Scout Ideals to Plain Telephone Operating," by Mrs. Ida VanArsdale, district toll instructor, Illinois Bell Telephone Co., Rockford.

A very constructive and entertaining address was delivered to the joint conference in the afternoon by Robert F. Hallenberg, director of public relations of the Illinois Northern Utilities Co., Dixon, on "The Value of Telling the Public Utilities' Story." Mr. Hallenberg has the ability of presenting constructive ideas in an entertaining and interesting manner, and in the course of his remarks displayed a remarkable knowledge of the technique of the telephone business.

Announcement was made by the officers of the Illinois Telephone Association of the establishment of a department for the handling of transmission problems in charge of a permanent member of the staff of the association's office. The services of this department are to be available to member companies on the same basis as the services of the head of the association's traffic department are available.

Successful People Plan and Learn.

The most successful people in every business are those who plan their work in detail, who are not beyond learning from the experience of others, and who absorb as much as possible the best ideas of those with whom they come in contact.

Association meetings are the most practical "experience meetings" which could be devised, for they bring together many who meet at no other time. Also the interchange of those experiences frequently brings out several solutions of the same problem, leaving the hearer to "take his pick" therefrom.— Ernest Irwin, secretary, California Independent Telephone Association.

Peninsular Company, of Tampa, Fla., Presents Service Emblems.

Employes of the Peninsular Telephone Co., from all sections of Florida in which the company operates, and their families numbering 1,200 or more, devoted June 10 to the tenth annual picnic of the company's personnel, in a day's outing at Pass-a-Grille. The hosts of the occasion were the telephone workers of the St. Petersburg exchange district.

The day's festivities were marked by the formal presentation by W. G. Brorein, president and general manager of the company, of gold service emblems to 84 employes who have spent five years or more in the company's service, each five years being denoted by one jewel.

The first presentation was made to John F. Vaughan, plant superintendent, who was hailed by Mr. Brorein as the first man to join him 24 years ago when the Peninsular company's system was begun. Others who received four-jewel emblems were W. U. Lathrop, and James Garrett, Bradenton; R. L. Mahaffey, Plant City; R. H. Thiot, James A. Arnold, Sr., Frank

The Employes of the Peninsular Telephone Co. and Their Families, Numbering 1,200 or More in All, Held Their Tenth Annual Picnic at Pass-a-Grille, Fla., on June 10, the Employes of

Nelms, William R. Harris, and J. J. Lunsford, of Tampa.

Those receiving three-jewel emblems, for 15 or more years of service included Mr. and Mrs. Franklin J. Blackburn, Frank Chancey, A. C. Durden, Bert Jolly, A. B. Jordan, E. E. Matthews, and Miss B. Riley of Tampa; P. Ackerman, Bradenton; and N. E. Jordan, Bartow.

Ten-year emblems were presented to: Earl Cherrington, J. J. Millyer, J. G. Joubert, J. J. Kreitzer, D. G. Mook, S. F. Parker and A. B. Steuart, Tampa; H. Breeze and D. A. Withrow, Bradenton; Taylor C. Scott, Sarasota; O. C. Stanley, Winter Haven, and C. D. Stinson, Tarpon Springs.

Those receiving five-year emblems were J. A. Arnold, Jr., Carl D. Brorein, Miss Mary Bynum, Jim Campbell, E. J. Cram, Miss Eva Day, Mrs. A. Gibson, the Misses Eleanor E. Hall, Minnie L. Hall and Claire Irwin, Charles Knight, Everett E. Knight, Mrs. A. Lewis, Willis Linhart, O. N. McAllister, J. A. Mullis, Thomas Murphy, H. P. Pritchard, P. S. Rosseter, Miss Gertrude Saffold, Ralph W. Shriner, Miss Bertha Sloan, J. D. Smith, Mrs. W. M. Spiers, Gus W. Starling, George D. Vaughn, and the Misses Mabel Whittacker and Catherine Williams, Tampa.

Miss Alice Benthall, R. C. Gravel, and Miss Willa May Pounds, Bradenton; Mr. and Mrs. H. C. Brasfield, L. F. Kearney and Cecil B. Kearney, Clearwater; Miss Lulu Davis, Mrs. Velma Hendrix, Miss Evelyn Johnson, M. W. Lang, Mrs. Loca Robinson and A. R. Smith, Lakeland; Mrs. N. E. Jordan, and Miss Lucy Reiford, Bartow; Mrs. Draughan and L. C. Rutledge, Plant City; the Misses Claire Lovelace and Helen Summer, St. Petersburg, and Miss Alma McGinty, Sarasota.

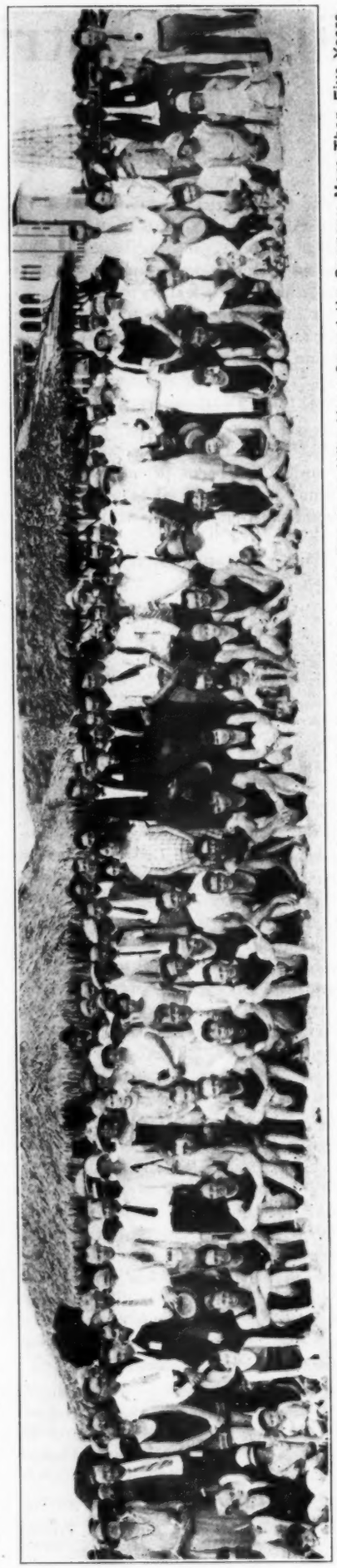
With Mr. Brorein acting as toastmaster, the entire gathering was served a shore dinner, and indulged later in field sports. The outing was concluded with a dance in the Pass-a-Grille casino.

First honors in a bathing beauty contest among the young women telephone workers were won by Mrs. Katherine Christie, chief toll supervisor of the St. Petersburg central office.

Great Britain to Have Better Telephone Service.

Great Britain is to return to penny postage, equivalent to the two-cent rate in America, and improvement of the country's antiquated telephone service, according to Sir W. L. M. Thompson, Postmaster General.

"I do not like to see this country standing tenth or eleventh in the list of telephone-using countries of the world," declared the Postmaster General. The telephone system in England is under government control. Recently there has been some improvement in the service because of the installation of automatic exchanges.



the St. Petersburg Exchange District Acting as Hosts—Festivities Marked by Presentation of Service Emblems to 84 Employes Who Have Served the Company More Than Five Years.

In the Telephone Operating Room

Aim of Operators Should Be to Give the Best Possible Service and to Be Company Boosters — Courtesy an Invaluable Factor — Burden of Good Will Promotion Rests on Operator—Papers Presented at Traffic Conference at Kansas Convention

The Operator As a Company Booster.

By Miss Louise Just,

Traveling Supervisor, The United Telephone Co., Abilene, Kans.

We, as operators, should be company boosters. Our aim should be to give service, not any old kind of service, but the best possible service that can be given.

In the past, in the view of the public, the telephone operators were at the bottom of the wheel. I am glad now to say that we have almost reached the top of the wheel. We should at no time be ashamed of our job and at no time should our job be ashamed of us. If we throw ourselves into our job, whatever it is, study all we see and hear concerning our job, we need never hunt for success. Success will find us.

Today, public opinions regarding telephone companies and operators have been changed. Not so long ago many imaginary opinions and crude operating practices gained a stronghold in the minds of the public toward the operators.

The telephone company has become one of the biggest community institutions and the public should be proud of it.

We, as operators, should be well posted on the telephone business. We should get familiar with its origin and growth. We should learn to know the different classes of toll calls, whether we are toll operators or not, monthly rental dates for the different classes of service, how our company is financed, and what dividends are paid and how rates are made. We should be thoroughly posted so that whenever a criticism is aimed at the company, we, as operators, can and should explain it in an intelligent and interesting manner. Convince the person making the criticism that it is the aim of your company to give high grade service and that either an error has been made by some individual or the criticism has been made ill advisedly, by their not understanding the facts.

Good telephone service is service which comes up to the expectation of the public. Good service, so far as the subscriber is concerned, depends on the combined efforts of the employes and the subscribers. The subscriber's part is a most vital one and is often overlooked by the telephone company. In order to get the subscriber's cooperation, the company must advertise our work in such a way as to keep the subscriber informed at all times. We must educate the public to a feeling of harmony and friendship.

Personal appearance and good conduct both in and out of the office play a big part toward gaining the goodwill of the people. The art of the operator is in the voice and effect it has on the subscribers. As I said before, in the past telephone companies and operators gained a widespread reputation for discourtesy, but owing to experience and training methods and the efforts of those in charge to bring about a different attitude on the part of the operator, this condition has been changed.

No class of employes in any line of endeavor today comes in contact with the public as frequently as the telephone operator, and with as little discourtesy, regardless of the extremely trying conditions under which she frequently labors.

In the small office the operator must learn to use good common sense. The fullest consideration should always be shown the subscriber, regardless of how unreasonable his demands be. Every operator should realize that her voice should be pleasant and businesslike, with lots of pep and snap. An agreeable voice, intelligently used, is a tremendous asset.

We must perceive in our mind the voice as attracting, gratifying and pleasing and tending to make the public turn toward us rather than from us. We should imaginatively regard ourselves talking with the voice produced in these terms. We must think of others as hearing it, and think of their unconscious response to it.

We must show our willingness to serve by a sincere and interested manner. If we take heed of the lessons in the past and learn to correct our mistakes, make a decision and then act. If you are wrong, admit your error and go ahead and do the right thing as you see it. Then you will become more efficient, for we all make mistakes. Mistakes are good for us, if we profit by them. You will never make the same mistake twice. As an old saying is, "Experience is a good teacher." In order to be company boosters, we must all pull together.

Value of Courtesy in the Telephone Business.

By Miss Eva Verdier,

Chief Operator, Osawatomie Telephone Co., Osawatomie, Kans.

Courtesy is today the watchword of business. Every day we come in contact with the courteous and discourteous man or woman. In public service, courtesy is demanded and expected of employes.

Courtesy has a great influence upon those whom you are serving, no matter where it may be. Courtesy is a quality we may all possess. It may be natural or acquired. If you wish to be successful in life, you must be courteous. It is the outward sign of a kind and gentle nature. It distinguishes the well bred from the savage.

If you are naturally courteous, you have a kind heart, are thoughtful of the comfort and happiness of others and unselfish. Courtesy implies something more than outward civility. It means forgetting self in the desire to give joy to some one else.

Oliver Wendell Holmes furnishes an example of a truly courteous nature. It is said of him that he had the ability to make you think that you were the best fellow in the world, and that he himself was the next.

The two ways in which we meet the public is in face-to-face conversations and in telephone conversations.

To my mind, it is of more importance that the telephone operator show courtesy than any other employe, because of the fact of her invisibility. We cannot show the public a smiling face, but we can give them a "smiling voice" service.

If, when you go into a store, you are met by a pleasing clerk who serves you in a courteous manner, she leaves a good impression upon you, does she not? You will no doubt think of that whole store as being courteous in the same way.

Apply this rule to operators. A subscriber calls the operator. If she receives an intelligent and courteous answer, she forms the impression at once that that company is a progressive one, and ready to serve her in the best way possible. On the other hand, if she encounters a discourteous and uninterested answer, she gets the impression that that company does things in the same way.

I have heard subscribers say that they would rather an operator be a little slow in answering them, than to get a quick, sharp answer and in such a tone that it seemed to be a burden to the operator to answer the call.

So it is not so much what we say, as the manner in which we say it that counts.

In speaking of the voice, the "voice with the smile" wins. The "voice with the smile" is the one which has a soft, pleasing sound, a rising inflection, and one which carries the idea of courtesy together with the desire to please.

An operator may be able to establish countless connections with her fingers, but

no matter how great the speed, if she does not use the "voice with the smile" the whole transaction becomes mechanical and is just a cold business proposition.

I wonder how many operators realize the fact that they are direct representatives of the company for whom they are employed. The manager may be courteous, also the wire chief, and linemen may do their work with skill, but if the operator does not smile with her voice, the subscriber thinks of the service as "poor."

One element of courtesy which we must all practice is that of "patience," in bearing with others their troubles, sorrows, pleasures, and listening to their wants.

Another is equal treatment. In public service we would serve everyone the same, regardless of race or station. It is easy to lay our gifts at the feet of the young, the lovely, the renowned. But the real test of character is the ability to be courteous to the unlovely or infirm. And this is the key that unlocks the door to success in business.

Courtesy irradiates our presence, and gives a momentary view of these qualities that are universally loved and respected—gentleness, unselfishness, gladness and peace. It costs nothing, and it buys everything. It is

"The jewel whose luster our lives may adorn,
The pearl that the poorest may wear."

Goodwill as Promoted by the Operator.

By Miss Jessie Ralph,
Chief Operator, Baldwin Telephone Co., Baldwin City, Kans.

I am from one of the socalled "small exchanges" and many of the things we do in Baldwin might not be possible in the city. But if this is true, then we small-town folk have a greater field for service and more ways in which to please our customers than do you girls who have thousands to our hundreds of people to serve.

But we are peculiarly situated in Baldwin, as we have Baker University there, and its events attract hundreds of visitors throughout the year. And if we do not have all the problems of the girl on the multi-position switchboard, we at least have the opportunity to serve many of your very customers at different times during the year.

This subject of goodwill from and to our customers covers an immense territory. It is rather a co-ordinate subject and one that deals both with the customer and the utility operator; but right or wrong, the burden of goodwill promotion rests on the one selling service.

I want to tell you briefly some of the things we are doing at our exchange to promote a mutually friendly relation, for after all, goodwill is just friendship.

We refer to our telephone service consumers as "customers," not subscribers. We think every man, woman and child within the environs of Baldwin is a potential user of our service, whether he is now a regular customer or not, so we do not confine our efforts to just those who are now buying our service. We think of the number of users in very broad terms. For instance, we have long distance calls to cities from Boston to Santa Ana and the stations between and are not those Boston and Santa Ana folks our customers too?

So you see we are not only trying to serve Baldwin with its population of 2,000, but any and all whenever we are called on to do so. And we give all possible attention to the man who has no telephone, for you never know when he may come in and order service.

We do everything to avoid friction between our customers and ourselves. One way we promote this friendship is to assume that the customer is always right. We may have every reason to think he is mistaken, but if we say the thing is as he sees it we might have his impression instead of the right one, so if anything goes wrong we urge him to come to the office and talk it over rather than to settle the matter over the telephone. If he will come and tell us his difficulty he is less liable to tell others, and you know how a story grows when repeated.

When he comes in we try to get him to tell us all about the situation, and we listen attentively until he has drained his mind of all he wants to say, then we try to correct the situation. If it is equipment that is out of order we see that the necessary repairs are made as quickly as we can. If possible, we get him in the operating room, where we can show him how we handle his business and let him see "the wheels go 'round." We tell him of the difficulties we have to meet and how anxious we are to please him and how disappointed we are when we fail. If there is any possible way to approach him, we never let him leave the office until we have substituted an indication of our friendly feeling for that antagonistic attitude he held when he came to the office.

The prompt repair of equipment is an important aid to goodwill. We have become so accustomed to the efficient performance of our telephones that we are very dependent on them for all the activities of our daily life. An interruption is keenly felt and prompt attention to trouble reports is very essential. We always thank our customer when he reports equipment trouble and make every effort to restore service immediately.

Personal contact is a valuable asset to goodwill, but our business association with our customers is largely had over the telephone. The merchant sees his customers frequently, often every day, but we seldom see ours except when they come in to pay their account—so when they do come in we make an opportunity to say a pleasant word to them and sympathize in their sorrows; rejoice in their pleasures.

The customer's opinion is largely formed by what he hears over the wires and by the reception he gets at the pay window, so we seize the opportunity to give him a cordial reception whenever he visits our place of business.

There are many ways of creating goodwill by the conduct of the switchboard service. When possible we recall the customer who has called a busy line. If the customer is unable to deliver a message to his called party, we urge him to entrust it to us and we keep trying until we have delivered the message or have a very good reason for not doing so.

If the customer calls for one who has no telephone, our information operator tells him the number of the nearest station and advises him how he may reach the party. We try to be prepared for any sudden emergency that may arise; in fact, we try to be prepared for any catastrophe that may come to our town.

I think of a case now where a country woman came home from town and found her husband a suicide. The first thing she did was to rush to the telephone. Her statements were so hysterical and her nerves so shocked that she could hardly tell the trouble, but we found what the trouble was, aroused the neighborhood, called a doctor, found her son in a nearby city, and helped her when she was least able to help herself.

Did that kind of service pay? Did she appreciate it? She has moved to Kansas City now but whenever she comes to visit, she calls or comes to see our manager and gives him a message of interest and appreciation in the affairs of our company. How much is that worth in dollars and cents? Why, we couldn't buy it, but that's goodwill and that has no price.

I sometimes think of our work as that of a concert organist who is trying to find the chords that will weave into a pleasant harmony and give satisfaction to his audience. We have to try this and that and the other thing, and sometimes we hit a discord, and then there is lack of harmony and the melody is ruined, but by constant effort and attention, we learn what pleases with the greatest benefit to the largest number.

After all, we are working for the customer and we have no more right to disregard his reasonable requests than has the bank clerk to refuse to keep his accounts as directed by the officers of the bank. If the customer is the boss, then some of us have few bosses, others of you have thousands of customer bosses, and the bigger we grow and more able we become, the more bosses we will have. We think of the President as holding the most responsible and exacting position, and he has

some 113 million bosses. The more we please our customers the higher up we will go—and we might yet have a woman for President.

This has been a somewhat rambling and disjointed talk, but one can not expect to cover such a big subject in a few minutes' time. All I could hope to do was to touch the high spots. I do believe that such a policy as I have outlined will increase our customer list, give us more friends, and show every one that we are not a cold-blooded, hard-hearted corporation, but a friendly very human association, organized to serve the telephonic needs of our communities in the best possible way.

Barron County (Wis.) Company Rebuild Its Toll Lines.

The Barron County Telephone Co., of Rice Lake, Wis., is rebuilding the toll lines leading to Barron, Dallas, Ridgeland, Hillsdale and Prairie Farm at a cost of about $6,000. A new toll line is also being built from Cameron to Chetek, two miles shorter than the old line.

In the city of Barron the toll line is to be taken off the main street to comply with provisions of a new ordinance passed by the council. The company is also making extensive improvements on the Rice Lake-Haugen and Rice Lake-Birchwood toll lines at Chartier's corners and vicinity.

Disposes of Interest in Bloomfield, Neb., Company

C. B. Campbell, who has been associated for the past two years as a partner with J. H. Gesler in the operation of the telephone company at Bloomfield, Neb., has sold his interests to Mr. Gesler, who becomes the owner.

Bloomfield is the town where a telephone patrons' strike forced the sale of the exchange to Mr. Gesler and a partner. The patrons refused to pay a 25-cent increase in rates, following the inflated prices period after the war. Mr. Gesler has had an almost impossible task in giving service, getting a fair return and setting aside enough for depreciation. His last year's record showed some progress, but indicated clearly the inadequacy of the rates.

The town recently voted to build an electric light plant, after a quarrel with the privately-owned company over rates. Most of the towns and cities in that section are abandoning municipal current-manufacturing plants and are buying their current from the big transmission line companies.

Mexican Telephone & Telegraph Co. to Modernize System.

According to recent reports received in New York City, the Mexican Telephone & Telegraph Co. is making headway toward the rehabilitation planned for it some time ago by interests then identified as being affiliated with the International Telephone & Telegraph Corp.

One of the first steps toward modernizing the 37-year-old system is the construction of automatic telephone systems in Tampico and Victoria, reported to be assured by a contract recently signed by Governor Portes Gil of the state of Tamaulipas with the Mexican Telephone & Telegraph Co. and ratified by the legislature. Besides providing for the installation of modern automatic telephones in the two larger cities, the contract authorizes the company to extend its long distance systems to all parts of the state.

The Tamaulipas improvements will cost $2,000,000.

What Telephone Statistics Indicate

Study of Statistics of 39 Member Companies of United States Independent Telephone Association in Ten Agricultural States West of Mississippi River Shows Direct Connection Between Rates Charged and the Management

By F. B. MacKinnon,

President, United States Independent Telephone Association

In connection with the general comparative summary of operating statistics of the A, B and C class companies of the Southwestern district of the United States Independent Telephone Association, which appears on page 20, it is interesting to note several conditions that have developed as the results of these accounting studies that the association is making.

In the issue of TELEPHONY for June 13 there was printed a general comparative summary of the A, B and C class companies of the United States association in its Northwestern district, and in TELEPHONY for June 20 there was an account of the conference held in the Southwestern district at Kansas City, Mo. and Dallas, Texas. In connection with the report of that conference there were published similar figures showing percentages in increase of the number of stations and the net income for the three classes of companies in that territory.

The Northwestern and Southwestern districts combined cover what we might call the west half of the Mississippi Valley as they include the ten states lying between the Mississippi River and the Rocky Mountains and from the Canadian to the Mexican border. These states are essentially agricultural and, therefore, we could well include them in one group.

The combination of the statistics for the 21 companies in the Northwestern district and the 18 companies of the Southwestern district shows that the increase in telephones for the ten states for the nine years of 1916 to 1924 inclusive was 38.3 per cent. The A class companies of the entire country had an increase in the same period of 66.1 per cent.

When we compare these two percentages in growth, we wonder just which territory or which class of companies is holding the average down by having the least increase. We find in the ten states of the two districts analyzed that during 1924 the A class companies increased at the rate of 3.7 per cent, the B class at the rate of 4.3 per cent and the C companies at the rate of 0.5 per cent.

This would indicate that telephone exchanges in the cities are growing faster than those in the rural districts. This is also emphasized when one considers that the B class companies, which show the greatest growth, are almost always one-exchange companies operating in cities of 20,000 population or over.

The small growth in the C class companies is an evidence of the reason for the small growth of the A class companies, as compared with the B class, because many of the A companies operate a large number of smaller exchanges whose failure to grow offsets the growth in the city exchanges of these companies.

When we turn to the item of "Income Available for Interest and Dividends," in the general summaries for these districts, we find all of the companies have made a substantial improvement. In the combined statement for the ten states, the amount available for such payments in 1916 was 5.8 per cent on the investment in fixed capital, while in 1924, for the same companies, the amount available was 7.1 per cent on fixed capital.

When we analyze this item for the ten states that make up the two districts, we find that the Southwestern companies, in 1924, earned a slightly higher rate in each class than did the companies of the Northwestern district. In the Northwest-

ern district the amount available for interest and dividends was, for the A class companies, 7.0 per cent; for the B class companies, 7.1 per cent; and for the C class companies, 4.8 per cent. In the southwestern district, the amount available for A class companies was 7.5 per cent; the B companies, 9.8 per cent; and the C companies, 5.1 per cent.

In connection with the increase in number of telephones operated by the various classes of companies and the earnings of those companies, it has been shown that necessity of efficient management is made very evident.

If the conferences already held have accomplished nothing more, the good that has been done in the way of pointing out these differences in accounting practices and the necessity of uniformity has been well worth all the money and effort expended on compiling the statistics and holding the conferences.

One of the necessities of the Independent group is ability to finance in the large financial centers when the need arises.

	1916.	1922.	1923.	1924.	Increase, 1916–1924.	Increase, 1923–1924.
Number of central offices	121	124	119	120	*1	1
Number of telephones	47,815	59,656	57,958	60,469	12,654	2,511
Toll wire mileage	.....	.....	29,998	31,694	.....	1,696
Fixed capital	$6,175,731	$8,408,023	$8,070,074	$8,591,705	$2,415,974	$521,631
Total assets	7,168,981	9,610,663	9,920,704	10,332,732	3,163,751	412,028
Capital stock	2,642,050	3,701,285	3,826,285	4,358,405	1,716,355	532,120
Funded debt	2,501,330	3,496,300	2,507,800	2,103,100	*398,230	*404,700
Operating revenue	$1,443,725	$2,539,642	$2,535,459	$2,722,930	$1,279,205	$187,471
Depreciation	223,772	446,204	457,364	463,862	240,090	6,498
Current maintenance	177,273	324,032	298,599	315,692	138,419	17,093
Traffic	250,372	478,306	458,410	456,072	205,700	*2,338
Commercial	86,034	146,461	127,877	134,338	48,304	6,461
General and miscellaneous	160,619	316,929	341,065	353,423	192,804	12,358
Total operating expenses	898,070	1,711,932	1,683,315	1,723,387	825,317	40,072
Net operating revenue	544,645	826,710	852,144	998,431	453,786	146,287
All other revenue	.....	24,964	92,984	27,041	27,041	*65,943
Taxes	$ 54,047	$ 190,994	$ 194,315	$ 212,615	$ 158,568	$ 18,300
Other deductions	50,893	89,708	112,462	105,674	54,781	*6,788
Total deductions	$ 104,940	$ 280,702	$ 306,777	$ 318,289	$ 213,349	$ 11,512
Income available for interest and dividends	$ 439,705	$ 570,972	$ 638,351	$ 707,183	$ 267,478	$ 68,832
Interest	153,192	189,302	167,299	136,133	*17,059	*31,166
Available for dividends	$ 286,513	$ 381,670	$ 471,052	$ 571,050	$ 284,537	$ 99,998
Percentages:						
Income available for interest and dividend to fixed capital	7.1	6.8	7.9	8.2	Pct. of Increase in No of Telephones:	
Net income to capital stock	10.8	10.3	12.3	13.1		
Interest to funded debt	6.1	5.4	6.7	6.5	1916–24—26.5	
Depreciation rate	3.6	5.3	5.7	5.4	1923–24— 4.3	
Operating ratio	62.2	67.4	66.4	63.3	1922–23—*2.8	

*Decrease.

General Comparative Summary for 1916–1924, Inclusive of A, B and C. Class Member Companies of the United States Independent Telephone Association, Southwestern District.

there is a direct connection between the rates being charged for service and the management of the properties. Certain of the companies have a much higher development in the same sized exchanges than other companies. Investigation shows that the companies that have this high development have higher rates.

In other words, the company that is operating on low rates and showing a low rate of return on its investment in fixed capital apparently makes no effort to increase its number of subscribers, assuming, perhaps, that additional subscribers at the low rate will be a liability to the company rather than an asset.

The question immediately arises as to whether such companies are being properly managed. Does not good management demand sufficient revenue to develop the territory covered to its very fullest extent?

In some localities the failure to grow may be properly ascribed to local economic conditions but, taking the districts as a whole, the conclusions seem to be that with proper rates there would have been greater development and correspondingly greater rate of return. So once more the Standard accounting practices, well-established and understood, will do more to accomplish the desired result than any one other thing. This was in the minds of the officers of the national association when they decided upon the program that is being carried out, which is a program of education as well as instruction.

"Express" Long Distance Service Given Between Certain Cities

There have recently been established in connection with the New York-Chicago long distance service an operating method and additional circuit facilities which permit of giving a very fast service. Over a period of three months the service records show that 76 per cent of the calls from New York to Chicago are connected, or a report given that the called party is not available to talk, in five minutes or less, and only 3 per cent took more than ten minutes. Plans are being perfected for the introduction of a similar service from New York to various other far distant points, such as Detroit, Cleveland and St. Louis.

The Bell system has also from time to time inaugurated a still faster and more convenient method for handling calls between points separated by 100 miles or less. This method is called the "two number" method and is used only to handle calls on which the calling subscriber knows the called telephone number and gives it to the operator who answers "Number, please?"

The calling subscriber then holds the line until the connection is established, or a report given him by the operator. This method is not used to handle calls for a particular person, known as person-to-person calls. This operating method will soon be established between New York and Bridgeport, New Haven and Norwalk, Conn., and New York and Trenton, N. J.

Additional toll circuits are constantly being added between points now having direct circuits, and new circuits are being established between points which have not heretofore had direct circuit communication.

Italians Plan to Obtain More Extended Telephone Service.

Plans are under way for the extension and improvement of Italy's telephone systems. There is room for considerable growth, as the Italian telephone facilities have hitherto been relatively limited.

The simplest index of the telephone development of any country is found in the proportion of telephones to population. In Italy, on June 30, 1923, the latest date for which statistics are available, there were 142,603 telephones serving 40,400,000 people, or 0.4 telephones per 100 population. As the corresponding ratio for the whole of Europe was over 1.0 telephone per 100 population, it will be seen that Italy

ranked low, even among European countries.

There were on the same date 454,309 miles of telephone wire in Italy. During the year ending June 30, 1923, there were 361,351,000 telephone conversations in that country, which was equivalent to nine telephone conversations annually per capita. In the United States during 1922 there were 174 telephone conversations per capita. In other words, the average American used his telephone nearly 20 times as often as the average Italian.

The Italian cities having the most extensive telephone facilities were Milan with 17,992 telephones, Rome with 14,261, Genoa with 8,347, Turin with 7,953, and Naples with 6,786. The city with the highest telephone development relative to population was Genoa, with 2.7 telephones per 100 inhabitants.

For many years a large part of the telephone system of Italy was owned and operated by the state and was far from being financially profitable. Recently, however, the country was divided into several districts or "zones," and the operation of the local telephone service within these zones has been turned over to various privately-owned companies.

In this way the Italian government has rid itself of the burden of recurrent telephone deficits, and an opportunity has been afforded for the progressive development of the Italian telephone systems by private enterprise.

Dade City, Fla., to Have New Building and Plant.

The contract for the erection of the new building for the Pasco County Telephone Co. in Dade City, Fla., has been let and the contractors will start work as soon as possible.

The plans call for a two-story structure of either brick or concrete construction. The lower floor will be fitted for use as a restaurant and has already been leased. The upper floor will contain two modern four-room apartments, one of which will be reserved for the switchboard and office, and living rooms for the operator. The other apartment will be rented to some desirable tenant.

With the completion of this building, a new switchboard of sufficient size to care for not only the present business of the company, but allow for the constantly-increasing demand for more telephones, will be installed. Practically the entire system of lines operated by the company will be rebuilt, copper circuits replacing the grounded circuits now in use, and new cables being installed to care for the many new lines which the growth of the business demands.

Prices in the Metal Market.

New York, June 22.—Copper—Easier; electrolytic, spot and futures, 13¾@13⅞c. Tin—Steady; spot and near-by, 56-12c; futures, 55.75c. Iron—Steady; No. 1 northern, $20@20.50; No. 2 northern, $19.50@20; No. 2 southern, $19.50@20. Lead—Steady; spot, 8.20@8.30c.

PUTTING THE RUSTLE INTO IOWA CORN, AND TELEPHONE SERVICE

By Miss Anne Barnes,

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

This morning's newspaper said that motorists from all sections of the state of Iowa report that the corn crop is "the finest in years." Then I wondered that if the farmers had not had all of the freak weather on record this spring and early summer to contend with, whether their corn crops would have been so fine. I do not know much about corn-growing, but I do know that I saw more farmers out in the fields this year than I have for the past nine years.

The little cornstalks are standing up slick, green, and clean in long, even rows, and the weeds scarcely get their noses out of the dirt before Mr. Farmer gets them. Sometimes I fancy I can almost hear those tiny cornstalks rustle gaily in the breezes. Somehow, their baby efforts remind me of a small boy just learning to whistle. "Never mind, I will be big some day," seems to say the small boy, and so seems to say the gay little cornstalks.

The farmer can surely be proud of his corn fields today. The story these fields of corn tell is one of the concentrated efforts Mr. Farmer has put in from early dawn until the stars peep out to remind him to take rest.

Somehow the absence of weeds between the rows of cornstalks set me thinking of other weeds; the summer crop of weeds which I find in telephone service in the fall when the vacations are all over.

Says a chief operator here and there to me occasionally in the fall: "Our service has fallen off this summer. You know we have to put supply and ex-operators on the board to fill in on the hours of our regular operators on their vacations. They are never so reliable."

We telephone folks are affected just as seriously as the farmer is when freak weather strikes. We never "shut up shop." We advertise only one kind of service the year 'round at the same price. "Then," say I, "why should we slacken our efforts, and give an inferior quality of service during the vacation time?"

When the farmer is going up and down his field, between the rows of corn, he uproots all weeds. He passes none over, because he knows that while they may be harmless today, they will grow if left standing, and hinder the quality of his corn.

The same principle holds true in our operating field. We must not allow the weeds to grow in our summer service, for they will affect its quality and if they are left to be weeded out in the fall, they will likely by that time have taken deep root in addition to scattering seed. Next fall will have work of its own.

Of course, when the time comes for a chief operator to take her vacation, I believe, and so do you, that she should go away and shut shop out of her mind—but her understudy should carry on the work just as effectively where the chief operator leaves off.

What is vacation, anyway? Webster says it means repose, rest, relaxation, taking a holiday, shutting-up shop —and, I add, "from your mind."

Who started vacations? The Lord did, for did He not say, "On the seventh day, thou shalt rest from thy labor"?

I imagine our ancestors must have put in a pretty full week in order to get a vacation the seventh day.

MORAL: All work and no play make Jack a dull boy. So take a vacation.

Radio from Listener's Standpoint

Comprehensive Discussion of Radio in Its Many Phases—Radio Receiving Set Operation—Selectivity and Sensitivity—Address Presented at the Annual Conventions of the Kansas and Pennsylvania Associations—Third Installment

By Ray H. Manson,

Chief Engineer, Stromberg-Carlson Telephone Mfg. Co.

It is to be expected that the first designs of radio receivers follow along the line of any experimental product and were so complicated as to require considerable experience in their operation. Gradually, improvements were introduced to simplify critical adjustments and finally with the advent of the neutrodyne receiver, the controls were simplified and made non-interdependent. In other words, the moving of one dial did not require that other dials be adjusted to compensate.

The neutrodyne system also brought into practice the use of calibration curves for locating desired stations on the tuning dials. This operation is shown clearly in Fig. 21.

After a station is once located on this type of receiver, it is a simple matter to make a record on a log card and use this record as an index for setting the dials when the same station is desired at any future time. Fig. 22 shows how this selecting of stations from a log card is obtained.

Recently, the question of the desirable spacing of stations on the dials, in order to facilitate tuning, has been brought to the attention of the public. The usual tuning system employed in receiving sets has a semi-circular condenser rotor as shown at *A* in Fig. 23. This places the class B stations between about 17 and 97 on the divisions of the dial.

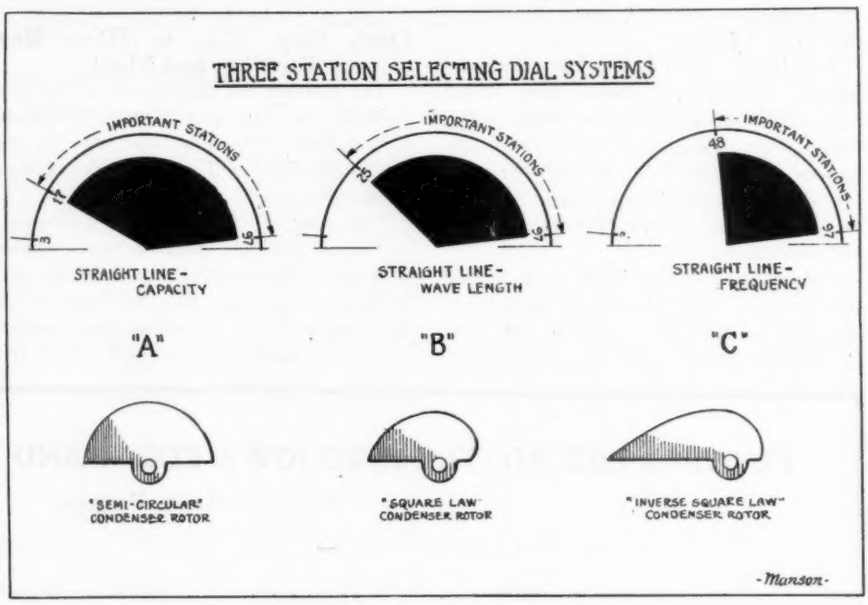


Fig. 23. Three Arrangements of Station Selecting Dial Systems.

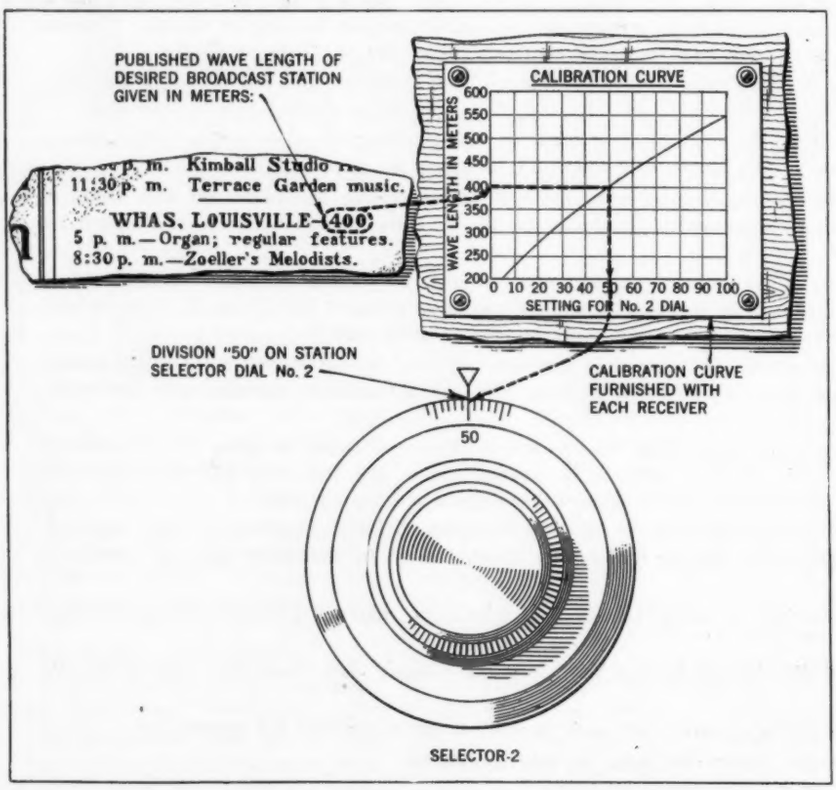


Fig. 21. Diagram Showing the Use of Calibration Curve for Setting Dials.

A rather narrow space (from 3 to 17 on the dial) remains, in which all the class A stations are crowded. The crowded condition at the lower end of the dial can be helped by the use of odd-shaped plates in the tuning condensers, arranged so as to spread out the space occupied by the class A stations, as shown at *B* and *C* in Fig. 23.

However, when the complete situation is analyzed and it is known that the class A stations are intended only for local broadcast reception and that as many as 30 stations have been assigned to some of the channels in this classification, it emphasizes the fact that these stations are "unimportant" ones and should not receive the same consideration as the class B stations.

On the other hand, the class B stations are regulated as to quality of programs and are so scheduled as to avoid interference; therefore, they should not be crowded together on the dial and make the matter of tuning more difficult. When all the facts are taken into consideration, the semi-circular dial as shown at *A* in Fig. 23 handles the situation in a logical manner.

Originally, tuned radio-frequency receivers employed separate dials for the operation of each condenser in the tuned stages, a three-dial set indicating three tuning

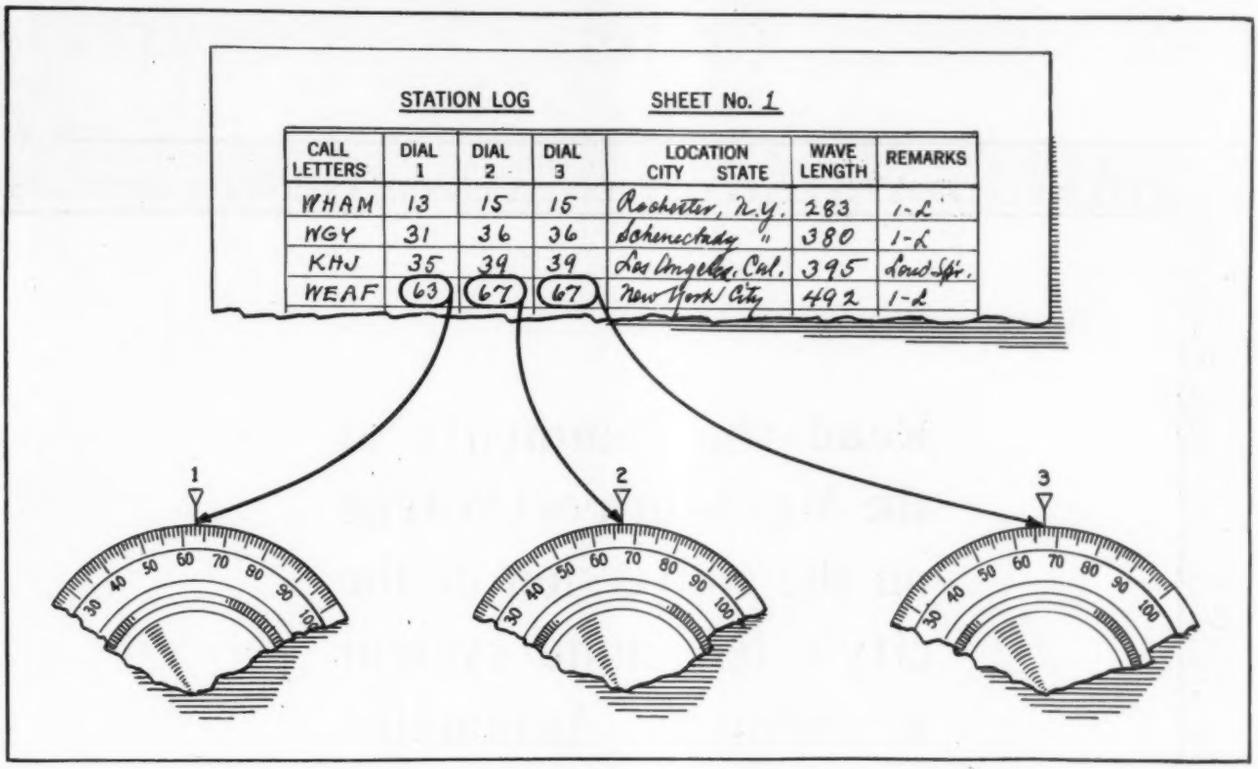


Fig. 22. Diagram Showing the Use of Station Log Card for Setting Dials.

systems or two stages of tuned radio frequency and an antenna tuning circuit. Recently, attempts have been made to gear or interconnect the dials, so that a single (or at most two controls) are required for tuning purposes.

Theoretically, all this is possible, but practically the slight mechanical variations in the assembly of the condensers, the variations in the electrical constants of the tubes, the variations in the size and electrical constants of the antenna and antenna tuning system, prevent obtaining the maximum sensitivity and selectivity for all settings, when the controls are reduced to one or two.

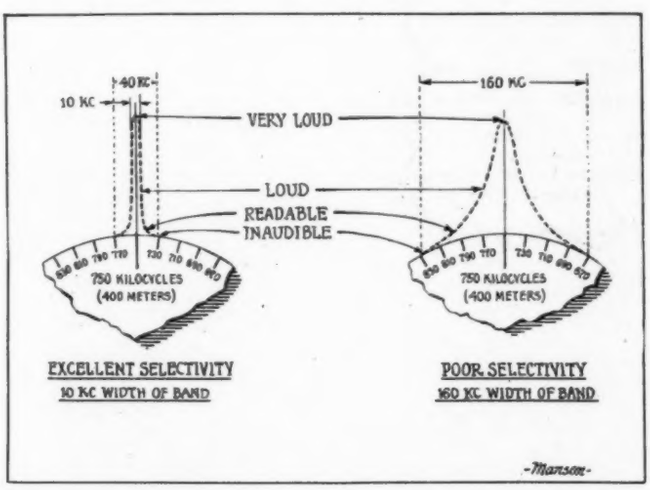
The use of a master control for approximate tuning, with individual controls for obtaining selectivity, has been tried out in practice but found to have no advantages over the familiar three dials. Simplified station selecting controls will eventually be a feature of future designs of receiving sets, but sensitivity, selectivity and quality of signal should have priority.

Radio Receiving Set Selectivity.

Theoretically, it is necessary to maintain a band of frequencies of five kilocycles each side of the carrier frequency for voice modulation to accommodate pitches as high as 5,000 per second. Thus, a band of 10 kilocycles wide is necessary for high quality radio transmission, and it is for this reason that the Department of Commerce has chosen a 10-kilocycle separation between channels when assigning the wave lengths to broadcast stations.

Fig. 24 shows in diagram a tuning dial with a resonance curve to indicate excellent selectivity and a similar dial with a curve to show poor selectivity. It will be noticed that in the former case, the resonance curve is only 10 kilocycles wide, while in the latter case the band of frequencies include 160 kilocycles.

The apparent lack of selectivity in a radio receiver, when "tuning away from" a powerful local broadcast signal, in the attempt to bring in a weak signal from a



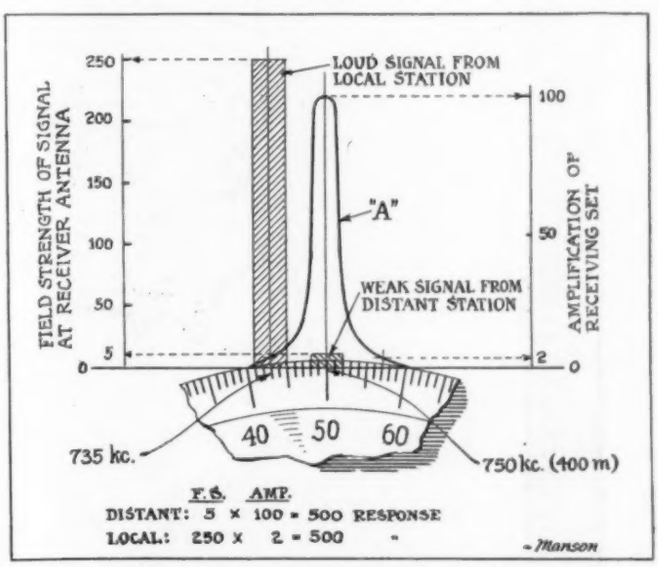

FIELD STRENGTH OF SIGNAL AT RECEIVER ANTENNA
AMPLIFICATION OF RECEIVING SET
LOUD SIGNAL FROM LOCAL STATION
"A"
WEAK SIGNAL FROM DISTANT STATION
735 kc.
750 kc. (400 m)
F.S. AMP.
DISTANT: 5 x 100 = 500 RESPONSE
LOCAL: 250 x 2 = 500
-Manson

Fig. 24. Diagram Showing Excellent and Poor Selectivity of Receiver.—Fig. 25. Effect of Powerful Local Signal on Selectivity of a Receiver.

Read the comments of the Mayor of Fort Wayne on the conversion of the city's telephone system to Strowger Automatic.

(From the Fort Wayne "Journal Gazette," May 30.)

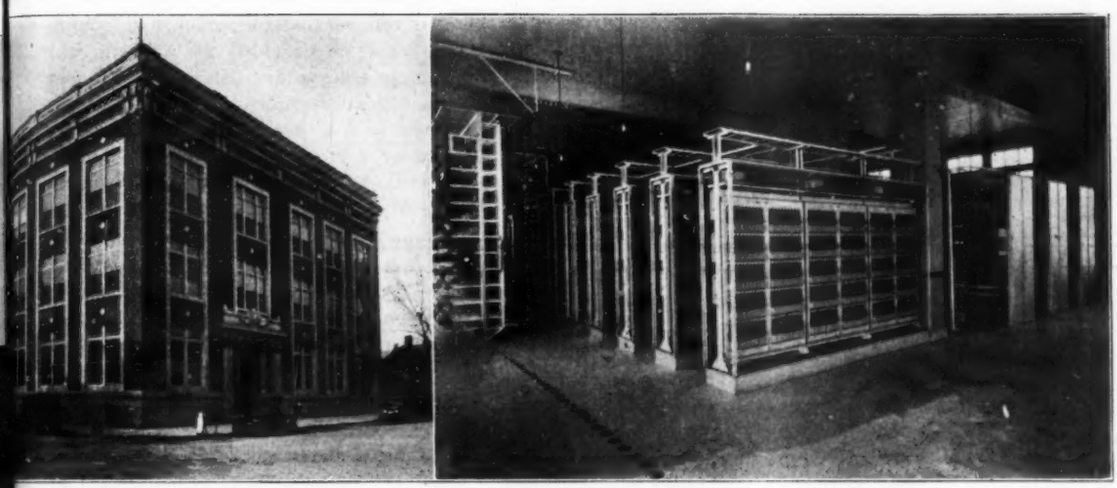
following formal statement:

"Fort Wayne has many things of which it is justly proud, but none, I believe, of greater importance to the prosperity and welfare of its people than its latest acquisition—a complete new telephone system, built with an eye to the city's future development, and embodying equipment which is known the world over, as the last word in the art of telephony.

"No city can grow appreciably, no city can long prosper, except its people and its business units are provided with an efficient means of social and business communication. The Home Telephone and Telegraph company has just reason to be proud of the part it has played in meeting these needs.

"In accepting the new automatic telephone system for the people of Fort Wayne, I take pleasure in extending my heartiest congratulations to the officials and employes of the telephone company for having planned so wisely and for providing us with what I firmly believe will be of far-reaching influence in making our city bigger, happier and more prosperous."

When writing to Automatic Electric Co., please mention TELEPHONY.



ew Anthony office building and switchroom of the Home Telephone & Telegraph Co., Fort Wayne.

ublic approval of service is one of the most valuable assets any one company can possess, and Strowger Automatic service ably brings it.

fter a year and a half of active preparation, the telephone n of the Home Telephone and Telegraph Co. of Fort Wayne has modernized in accordance with the latest approved standards world's foremost telephone engineers. Conversion to Strowger natic has been completed.

he statement issued by Mayor Hosey of Fort Wayne and re- ced on the opposite page represents the opinion of both the ess and social interests of the city, and has been confirmed times since the telephone users have had an opportunity to he new system the final test—that of actual service.

omments from both business and residence subscribers since utover have been numerous and all are agreed that the new n represents a distinct forward advance in quickness and acy of service and convenience of operation.

Automatic Electric Company

Factory and General Offices: Chicago, Illinois

ASSOCIATED COMPANIES

ternational Telephone Sales and Engineering Corporation.....New York
ternational Automatic Telephone Company, Ltd.....London
tomatic Telephone Mfg. Co., Ltd.....Liverpool
mpagnie Francaise pour l'Exploitation des Procédés Thomson-Houston.....Paris

distant station on a nearby wave length, is shown graphically in Fig. 25. The resonance curve for a typical tuning system is given at *A*, it being sufficiently wide to include a 10-kilocycle band of frequencies, in order to avoid cutting off

WHAT CAN BE EXPECTED FROM YOUR RECEIVER

TYPES OF SERVICE IN THE NEIGHBORHOOD OF NEW YORK

TYPE OF SERVICE	DISTANCE OF STATIONS	SERVICE AVAILABLE	
		MONTHS PER YEAR	HOURS PER DAY
LOCAL SERVICE	LESS THAN 100 MILES	11 7	24
INTERMITTENT SERVICE	LESS THAN 500 MILES	9	8
OCCASIONAL SERVICE	LESS THAN 2000 MILES	4	4
"FREAK" SERVICE	OVER 3000 MILES	?	?

From Article by Dr Goldsmith

Fig. 26. Table Showing What Can Be Expected from Your Receiver for Distant Reception.

desirable audible frequencies, yet narrow enough to give excellent selectivity as shown in the left-hand view in Fig. 24.

All resonance curves have a spread at the bottom; this resulting in a small amplification of signals on either side of the resonance point. For example, in Fig. 25, seven divisions either side, from the point of maximum response (resonance), an amplification of two units is shown, the maximum amplification at the peak being taken at 100 units.

With weak signals, from distant stations that are separated by 10 kilocycles (minimum separation allowed by the U. S. Department of Commerce) the amplification of the signal in tune with the resonant or high point of the curve would predominate.

However, with a strong signal from a local station, say 15 kilocycles from the resonant point (represented at 43 on the dial in Fig. 25) there might be sufficient amplification to give a response in the receiving set that would be equal to or greater than the amplified signal from the distant station, which is tuned at the resonance point of the receiver.

For example, if we assume the "field strength" of the signal from the local station is 250 units and the field strength of the distant station is only five units (as shown at the left hand vertical scale on diagram, Fig. 25) and the amplification of the receiving set for the high point on the resonance curve is 100 units and the amplification of the local station comes at a point on the resonance curve represented by two units (as shown by the right hand vertical scale, then the response of the receiving set to these two stations would be the product of the field strength times the amplification in each case, or as follows:

	Field Strength of Broadcast Signal		Amplification of Receiver		Response of Receiving Set
Local station	250 units	X	2 units	=	500
Distant station	5 units	X	100 units	=	500

Therefore, it is seen that a local loud signal or a nearby wave length can predominate due to magnitude alone, even if the receiver has excellent selectivity (as narrow a resonance curve as is permissible for good quality). It is for this reason that no two local stations are given wave lengths closer than 40 or 50 kilocycles apart. For example, in the New York City district, the separations are as follows:

Station letters.	Frequency kilocycles.	Separation between stations lowest frequency.
WNYC	570	40 Kilocycles
WEAF	610	50 Kilocycles
WJZ	660	90 Kilocycles
WJY	740	120 Kilocycles
WHN	830	150 Kilocycles
WGBS	950	

Selectivity in a receiving set can be improved by cutting down the losses in the tuning elements and by placing several tuned circuits in tandem, the same as in the neutrodyne type of receiver. Selectivity also can be improved by reducing the size of the pick-up device or antenna.

Loop sets, in general, can increase selectivity by arranging the loop so that it will point in the direction of the desired incoming broadcast signal. The use of a loop, however, adds another station selecting control to the radio receiving set and is objectionable from that standpoint.

Radio Receiving Set Sensitivity.

It is interesting to note that the transmitting distance claimed by the manufacturers of broadcast station equipment is extremely conservative. For example, from a 100-watt transmitter of the Western Electric type it is claimed to give only 50 miles of daylight and summer-time distance, while a 500-watt transmitter has only 100 miles of daylight and summer-time rating. In general, it is considered that this distance is increased about 5 to 1 under favorable night operating conditions.

With the present arrangement of multiple broadcasting and the increase of power in class D stations, it is possible for any radio set owner to obtain a sufficient number of local programs to give 90 per cent satisfaction. However, there is always intense interest in picking up distance, and a radio receiver, to satisfy the majority of broadcast listeners, must be capable of bringing in signals from extreme distance when occasion requires and the receiving conditions are satisfactory.

As stated before, the limit of distant reception is the background of noise brought in, but from the standpoint of the radio receiver design, sufficient amplification must be provided to build up any signal to loudspeaker volume, that can be picked up on the antenna. It is interesting to note in Fig. 26 the conservative rating given by a prominent broadcast engineer, for radio reception in the neighborhood of New York City.

Many theories have been advanced as to why extreme distances are obtained and why the signals from distant stations have a tendency to "fade." Fig. 27 illustrates one of the theories advanced by an English scientist, the late Oliver Heaviside.

This diagram is self-explanatory with the exception that the fading is considered to be due to the sky waves and the ground waves, at times, getting out of phase at the receiving station so as to cancel the action at the receiving antenna. Of course, at other times, these sky and ground waves combine and build up a much stronger signal than could be received by the way of the sky or ground paths, if taken alone.

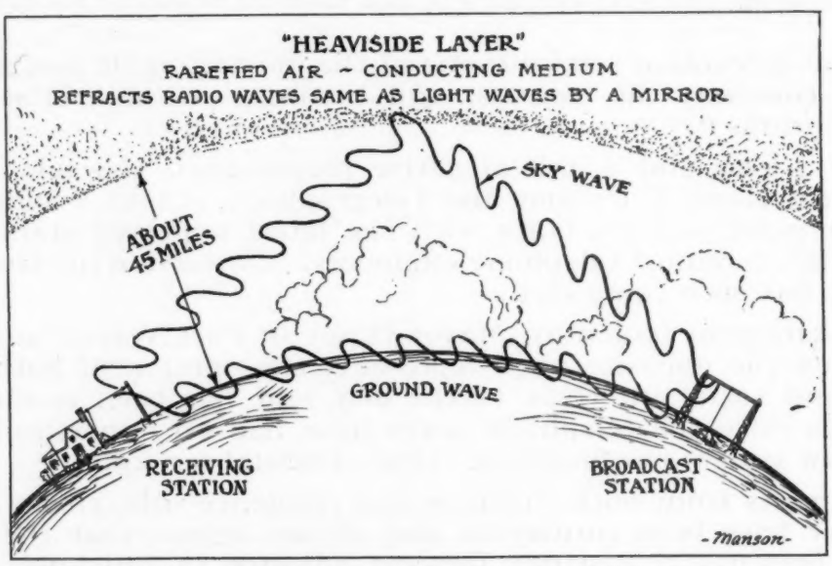


Fig. 27. Diagram Showing Action of Heaviside Layer.

District Meeting of New York Association at Cazenovia Lake

A large and enthusiastic district meeting and traffic conference was held by the Up-State Telephone Association of New York on Saturday, June 27, at Shore Acres Inn, Cazenovia Lake, Madison county, N. Y.

Here and There in Telephone Work

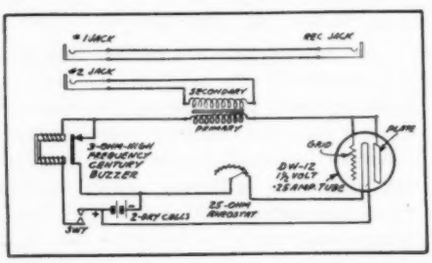
Home-Made Tone Testing Set for Cord Circuits.

By N. E. Branson,

Superintendent, DeKalb County Telephone Co., Maysville, Mo.

Enclosed is a sketch of a circuit of a tone testing set with which we are having very good success, especially on cord circuits, either with or without repeating coils in circuit.

We are using a three-ohm, high frequency, Century buzzer, but any other good buzzer will answer the purpose. The



Circuit of Tone Testing Set for Cord Circuits Which Is Giving Excellent Results at Maysville, Mo.

vacuum tube is an ordinary standard WD-12 detector and amplifying tube with standard base. One 25-ohm rheostat is in series with the battery and lamp, and a single-pole push-button switch is provided to operate the buzzer. Two switchboard jacks, preferably the same as those in board of the cord circuit to be tested, and one receiver jack, complete the equipment of the set.

All this material may be assembled in a box not larger than 6 ins. by 6 ins. by 9 ins., which will be found large enough to accommodate one pair of dry cells with which to operate the buzzer and furnish current for the vacuum tube. We might mention here that, after the test set is properly assembled and battery connected, upon closing the buzzer switch and rotating the rheostat around about two-thirds of the way, you find you get no tone in the receiver, you may find it necessary to reverse your battery connections, the volume of tone being regulated by the rheostat to the full capacity of the tube.

No condensers or resistance coils are necessary in the circuit. The tone is of a very soft quality and not disagreeable to the user, making it easy to detect cutouts in keys or cord circuits. We find that the slightest particle of dust or gum, which tends to form partial opens in key contacts, never break down with this tone and are easily located. Corroded plugs or jacks will not conduct the tone; therefore, all points of contact must be clean before the tone will pass.

This circuit is so simple in its makeup that I hardly think it necessary for any further explanation other than to say that the circuit to be tested should be connected in jacks Nos. 1 and 2, while the receiver is plugged into the receiver jack. The tone will then flow from the secondary of induction coil in series with the receiver and the circuit under test.

There may be other devices added to the circuit from time to time as one might deem it necessary, or to suit local conditions.

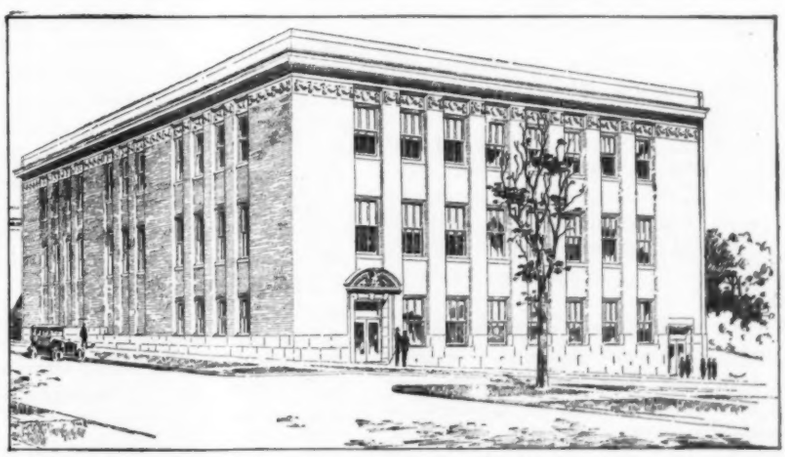
New $300,000 Building to Serve as Wire Center in Sioux City

On this page is reproduced the architect's drawing for the $300,000 building to be erected by the Sioux City Telephone Co. in Sioux City, Iowa, to serve as a wire center. The building will be erected on the southeast corner of Ninth and Douglas streets. It will be three stories high, 95 by 150 feet and of brick and concrete fire proof construction. W. L. Steele is the architect.

The erection of a new $300,000 structure as a centrally-located wire center is the first step in a contemplated $1,800,000 program of improvements of company buildings and plant equipment, according to an announcement by Vice-President and General Manager James A. Rae.

This program was determined, following an exhaustive study to estimate the future telephone requirements of Sioux City.

Last year the Sioux City Telephone Co. added 641 new telephones to its system,



Architect's Drawing of New Exchange to Be Erected in Sioux City, Iowa.

and according to conservative estimates by the company officials, it will be necessary to provide for 4,395 additional telephones within the next five years.

The site at Ninth and Douglas streets for the new central building was selected by the company because it is a point from which telephone wires and cables can most economically be extended to all other parts of the city. Probably the first improvement to be made in equipment will be the installation of 7,000 new automatic switches, and the laying of new cables and conduits in various districts.

The new building is intended primarily for a central office for equipment, Mr. Rae explained. The business office of the company in the Commerce building, Sixth and Nebraska streets, will remain in the present location for some time.

It is expected the work on the new central building will be completed by next March. Contemplated equipment improvements will take from four to five years to complete, it was announced.

Transformer Causing Radio Annoyance Located with Radio Set.

By Fred Berry,

Local Manager, Mutual Telephone Co., Gladbrook, Iowa.

Having been bothered to a considerable extent by a 6,600-volt high-tension line setting up a noise on adjacent telephone lines, and a worse disturbance to all radio sets within a radius of a half-mile for the entire length of line, we hit upon the novel scheme of using radio as a means of locating the trouble.

The high-tension line serves about 50 rural patrons and covers about 35 miles of territory. Under normal conditions it is very quiet, only a slight hum being heard on the telephone lines and no disturbance at all to radio sets; but a slight leak to ground, or a small arc caused by a fuse cartridge not fitting tight, certainly put the radio sets out of business. No attention was paid to this sort of trouble by the ordinary patrons of the line as their lights were in no way affected, but, as we are in the radio business as well

as the telephone game, we were very much interested in eliminating the disturbance as quickly as possible.

Our previous method had been to drive out and open sections of the line and call back to some party with a radio set near town for a test and, when a faulty section was found, to disconnect each individual transformer and repeat the test each time. As all this required a great deal of time, we adopted more modern means of locating our last case of trouble of this kind.

We happened to have in stock a small, two-tube portable self-contained set which we connected up in our Ford roadster, stringing a small aerial on the side of the car and connecting the ground to frame.

Tuning in the set and putting on the head telephones, we started out at our usual speed following the line, passing several transformers without any noticeable change in noise in the head telephones. Then we came to one where the disturbance increased very much and gradually diminished as we went on by. Repeating the process of passing the transformer two or three times, we were convinced that we had stopped at the right place, and as soon as the cutouts were opened and the cartridge clips bent to fit tight, the air was entirely clear.

There is no doubt room for more experiment along this line, and it probably has been used before, but it is original with us and we are very enthusiastic about its time-saving possibilities. If anyone knows of a better stunt, we would like to hear about it.

Why Not Sell Switchboards Like Automobiles—On Improvements Made?

By W. S. Green,

Kellogg Switchboard & Supply Co.

Why don't telephone companies buy switchboards as they buy automobiles?

Why is it that a switchboard must be a certain age, or develop a certain bad tendency of infirmity, before a telephone company even thinks in terms of replacing it? If people bought automobiles with the same thought and consideration and expectation for life, few machines would be sold.

The facts are that the automobile manufacturers are always changing, developing and improving their products—and they talk these improvements in economy of operation, etc.—but as facts go, the automobile art has not progressed any faster than the telephone art.

Why not sell switchboards on a basis of the improvements made rather than on a basis of their extremely long life alone?

Telephone companies keep buying new automobiles for their linemen every two or three years, because they find the old ones too expensive to run in comparison with the new. Information comes to them through automobile salesmen, whose business it is to prevail upon them to buy a new car and junk or trade in the old one, not because the old car is worn or used up but because the later models have improvements not embodied in their present car.

If this can be done with automobiles, why should not the telephone manager buy a new switchboard for the operators on the same line of reason, particularly when the telephone company's whole success is due to the service that it is possible for its operators to give through the switchboard?

Why does the telephone manager and his company need new up-to-date cars and equipment, regardless of age and condition, when the operator must give to each and every call that thing the subscriber calls "service," and be expected to do it with apparatus, which while still mechanically in good condition, is not modern in the sense that the best service cannot be given with it?

What does it matter to the subscriber what the outside plant is, or what wonderful conveniences the plant department has to travel in or work with, if the switchboard that gives this service does not keep pace with the development and improvement of the rest of the plant?

Why do we not sell switchboards on a basis of economical operation and better and more likable service, and quit talking and believing that a switchboard ought to last a certain term of years?

Subscribers buy service, so let the manager forget when the particular switchboard was bought—also forget the supposed life of the switchboard and also forget that the new board means an additional investment—and talk in terms of service and money making which mean continued added success for the telephone company.

Let us boost, talk and sell the thing that will give to the subscriber who buys the thing the telephone company has to sell, the best and most modern the art affords. While we are doing it, let us show the telephone company how an expenditure of money for modern equipment will not only pay for itself in a few months, besides retiring the present board even if it is only a few years old, but also how it will make it possible to buy more and better automobiles.

If the automobile manufacturers were in the telephone manufacturing business, they would replace every swtichboard at least every two years.

Information on Small Rectifiers Now Extensively Used.

A publication dealing with the theory and performance of small rectifiers has recently been issued by the U. S. Bureau of Standards, Department of Commerce. Such rectifiers have come into extensive use in recent years for the charging of radio batteries and other small batteries, and for the charging of larger batteries where a low charging rate is used, this being known as trickle charging.

Three types of rectifier are described—the electrolytic, the thermionic, and the vibrating. In each case the principles of operation are given, together with results of investigations of their performance made at the Bureau of Standards. Many of the general investigations on the laws of rectification were made on rectifiers of the electrolytic type, but apply to the others.

The purpose of a rectifier is to change alternating current into direct current, and its function is essentially the same as that of the check valves on a pump. The current flows through the circuit in one direction, but is stopped when it reverses and starts to flow the other way.

The three types of rectifiers described are considered the most satisfactory for small currents, while the mercury arc rectifier is used for larger currents. Motor-generator sets and rotary converters are also used for producing direct current from alternating, and in the very large sizes needed for street railways they have little competition.

The electrolytic rectifier takes advantage of the fact that certain metals, when immersed in certain solutions, become coated with oxide films which will allow an electric current to pass through in only one direction. The current flows only when the valve metal is the cathode of the cell. The other electrode of the rectifier may be of a metal which does not exhibit this sort of action.

The two valve metals most generally used are aluminum and tantalum, aluminum being the cheaper, while tantalum is more durable and can be used with larger currents. The aluminum rectifier is satisfactory for charging B radio batteries and for experimental work.

The thermionic rectifier makes use of the same principle as that used in the radio vacuum tube, namely, that an electric current will flow between a cold plate and a hot filament only when the plate is positive. In the rectifier the tube is usually filled with argon gas under low pressure, and the plate is made of graphite.

The vibrating rectifier has a contact so designed that it is closed only during that part of the alternating current cycle when the current would flow through the battery in the desired direction, and is open at other times. If well designed, such a rectifier is inexpensive and easy to maintain, but its use is limited to the rectification of small currents.

The publication is Technologic Paper No. 265 of the Bureau of Standards. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 20 cents.

Financial Statements and Reports

Reports of Financial Operations of Nebraska Companies During 1924 and Compilation of Comparative Statistics Prepared by the Commission for 1924—Interstate Commerce Commission Compilation of Class A Statistics

Report of Company in Nebraska Sugar Beet Territory.

A satisfactory year for 1924 is reported by the Platte Valley Telephone Co., of Scottsbluff, Neb., in its annual summary filed with the state railway commission. The company now has $259,400 stock outstanding, on which it paid 8 per cent dividends. It has a bonded indebtedness of $165,300, a depreciation reserve of $143,465 and a surplus of $11,010, to which $560.65 was added for the year.

The total investment of the company is now $605,905, which, with working assets of $36,338 and deferred debits of $13,069, brings the total up to $655,312.

Eben D. Warner, president and general manager, is the largest stockholder, and with Mrs. Warner, W. H. Ostenberg, Sr., of Omaha, and H. M. Carmean, owns all but a few hundred shares.

The annual report showed operating revenues of $122,963.88, divided as follows: Exchange rentals, $92,801.25 and toll $34,230.13. The operating expenses were $90,692.09, leaving a net of $39,271.79, increased to $39,788.71 from other sources.

Out of the net the company paid $10,725 interest on its funded debt, other interest of $4,569.65, taxes of $3,960, leaving a net available for dividends of $20,960.96. Dividends paid aggregated $20,400.13.

The operating ratio of operating expenses to operating revenues was 69.78 per cent.

The company now operates 11 exchanges, and a total of 3,532 stations. Scottsbluff has the largest number, 1,335. The other exchanges are located at Bayard, Gering, Guernsey, Lingle, Melbeta, Minatare, Mitchell, Morrill, Torrington and Yoder. Three of these exchanges are across the line in Wyoming.

The company serves the entire North Platte valley, in which sugar-beet raising is the principal industry.

Class A Company Statistics for the Month of March.

The bureau of statistics of the Interstate Commerce Commission has issued its compilations, subject to revision, from the monthly reports of Class A telephone companies for March, as reproduced on this page.

For that month the operating revenues totalled $64,390,903, an increase of 12.8 per cent over the same month last year: the operating expenses, $43,557,683, an increase of 8.2 per cent and the operating income, $15,367,883, an increase of 28.1 per cent. On March 31, 1925, the Class A companies had in service 12,464,368 stations, an increase of 7.1 per cent over the preceding year.

The revenues for the three months ending with March totalled $188,360,856, an increase of 11.4 per cent; expenses, $127,803,111, an increase of 6.5 per cent; and operating income, $44,325,182, an increase of 27.7 per cent.

Company Makes Good Showing As Property Is Improved.

The annual report of the Platte County Telephone Co. to the Nebraska State Railway Commission shows a total permanent and long-term investment of $140,765.70. The company was purchased several years ago from the old owners by a group of men prominent in the management of the Lincoln Telephone & Telegraph Co., and its $73,600 worth of stock is owned by Frank H. Woods, R. E. Mattison, W. E. Bell, W. L. Lemon and Thomas C. Woods. In addition to the investment noted, it has working assets which bring the total up to $146,924.

Other items of the liability side are: Bills payable, $13,500; accounts payable, $1,038; accrued liabilities not yet due, $1,381.52; depreciation reserve, $22,533.08; undivided profits, $10,107.98; surplus, $24,764.07.

Telephone revenues for the year were $45,350.65. The principal expenditures were: Current maintenance, $13,500; traffic expense, $9,415.61; commercial, $3,364.40;

Item.	For the month of March. 1925.	1924.	Increase or decrease (*). Amount.	Ratio, Pct.	For the three months ending with March 1925.	1924.	Increase or decrease (*). Amount.	Ratio Pct.
Number of company stations in service at end of month	12,464,368	11,634,650	829,718	7.1	.....	.....	.....	....
Revenues:								
Subscribers' station revenues	$41,368,725	$37,093,330	$4,275,395	11.5	$122,084,599	$110,169,107	$11,916,492	10.8
Public pay station revenues	2,893,738	2,573,786	319,952	12.4	8,438,578	7,641,752	796,826	10.4
Miscellaneous exchange service revenues	481.899	455,928	25,971	5.7	1,468,827	1,364,735	104,092	7.6
Message tolls	16,497,205	14,278,309	2,218,896	15.5	47,108,691	41,891,320	5,217,371	12.5
Miscellaneous toll line revenues	1,806,901	1,561,691	245,210	15.7	5,354,327	4,667,910	686,417	14.7
Sundry miscellaneous revenues	1,298,429	1,096,902	201,527	18.4	3,795,301	3,238,186	557,115	17.2
Licensee revenue—Cr.	2,477,600	2,199,062	278,538	12.7	7,325,077	6,535,422	789,655	12.1
Licensee revenue—Dr.	2,433,594	2,166,448	267,146	12.3	7,214,544	6,407,651	806,893	12.6
Telephone operating revenues	$64,390,903	$57,092,560	$7,298,343	12.8	$188,360,856	$169,100,781	$19,260,075	11.4
Expenses:								
Depreciation of plant and equipment	$ 9,865,145	$ 8,624,062	$1,241,083	14.4	$ 29,276,016	$ 25,609,388	$ 3,666,628	14.3
All other maintenance	9,362,139	8,354,362	1,007,777	12.1	27,125,207	25,451,407	1,673,800	6.6
Traffic expenses	15,887,798	15,621,876	265,922	1.7	46,570,701	46,261,074	309,627	0.7
Commercial expenses	5,522,659	5,180,634	342,025	6.6	16,328,564	15,194,568	1,133,996	7.5
General and miscellaneous expenses	2,919,942	2,483,751	436,191	17.6	8,502,623	7,491,564	1,011,059	13.5
Telephone operating expenses	$43,557,683	$40,264,685	$3,292,998	8.2	$127,803,111	$120,008,001	$ 7,795,110	6.5
Net telephone operating revenues	$20,833,220	$16,827,875	$4,005,345	23.8	$ 60,557,745	$ 49,092,780	$11,464,965	23.4
Other operating revenues	$ *7	$ 286	$ *293	....	$ 666	$ 1,143	$ *477	*41.7
Other operating expenses	146	289	*143	*49.5	921	978	*57	*5.8
Uncollectible operating revenues	395,286	352,878	42,408	12.0	1,236,610	1,028,217	208,393	20.3
Operating income before deducting taxes	20,437,781	16,474,994	3,962,787	24.1	59,320,880	48,064,728	11,256,152	23.4
Taxes assignable to operations	5,069,898	4,482,471	587,427	13.1	14,995,698	13,356,153	1,639,545	12.3
Operating income	$15,367,883	$11,992,523	$3,375,360	28.1	$ 44,325,182	$ 34,708,575	$ 9,616,607	27.7
Ratio of expenses to revenues, per cent	67.65	70.53	*2.88	....	67.85	70.97	*3.12	....

*Deficit or decrease.

Compilation of Statistics by Interstate Commerce Commission Prepared from Monthly Reports of Class A Companies for March.

general, $4,743.05; a total of $34,651.78. The net telephone earnings were $10,698.87, and with sundry additions to income make up a total of $11,214.62. Interest payments totaled $1,106.64. No dividends were paid, but the entire net of $10,107.98 was put in undivided profits. The increase in fixed assets during the year was $6,890.84.

The company management has been directed towards putting the plant into a high state of efficiency, and this has been fairly well accomplished to date. Further improvements will be made during the year. The company's main exchange is in the city of Columbus, one of the live smaller cities of the state. The number of stations increased during the past year from 1,983 to 2,022.

1924 Statistics of Nebraska Companies Compared With 1923.

Figures compiled by I. J. Devoe, accountant for the Nebraska State Railway Commission, from the annual reports filed with him by the various telephone companies of the state, not including the Northwestern Bell, but including the Lincoln Telephone & Telegraph Co., show that while net operating revenues or income were $200,000 less in 1924 than in 1923, operating expenses increased $460,000.

The larger companies increased their number of subscribers, but there was a falling off in a number of the smaller companies, so that the total number of stations remains about the same, 243,000, or about one telephone to every five persons in the state.

The dividend payments were less by $30,000 than a year ago, when only about one in four companies paid any dividend. Others made money, but did not declare dividends, either through use of the money for construction or because of the small margin of profit.

Meanwhile the investment in the business has increased. Including the Northwestern Bell, the total is approaching the 35 million mark. A little over half of this is represented by the Bell property, which has a very large investment in Omaha. The investment outside the two large companies is close six million dollars. The following figures do not include the bell:

Capital stock: Decreased from $9,578,975 in 1923 to $9,314,365 in 1924.
Notes and bonds: Decreased from $2,267,497 to $1,974,329.
Depreciation reserves: Increased from $3,265,939 to $3,324,452.
Surplus and undivided profits: Decreased from $1,736,863 to $1,688,760.
Total liabilities: Decreased from $11,846,473 to $11,593,124.
Operating revenues: Decreased from $4,158,731 to $3,943,494.
Operating expenses: Increased from $3,221,406 to $2,758,282.
Interest: Decreased from $143,357 to $130,307.
Dividends: Decreased from $582,913 to $552,854.

Of the latter total, the Lincoln company paid all but $80,864. Last year the other companies paid dividends of $112,843, or $32,000 more than during the last year. The Lincoln company increased dividends from $469,000 in 1923 to $472,000 in 1924, on a slightly increased total of outstanding stock.

The following figures for 1924 do not include either the Northwestern Bell or the Lincoln company reports:

Number of stockholders, 16,077.
Number of telephone stations, 64,841, divided as follows: Business, 9,358; residence, 22,907; rural, 32,516. In addition, there are 12,336 farm-line telephones owned and operated by farmers as mutual concerns.

The Lincoln company is widely owned, over 2,100 persons holding its $6,905,000, but the Northwestern Bell is owned by the parent Bell company, the American Telephone & Telegraph Co., a few shares being held by officials in order to qualify as directors. A considerable number of Nebraskans hold stock in the American company, but it does not report to the Nebraska commission. The Northwestern figures are not included because its reports carry statistical information for the entire territory of the five states in which it operates.

The Nebraska commission has made but little progress, apparently, in its effort to induce the smaller companies to pay regular dividends in order to find a home market for the money necessary for pay for additions and betterments. Several reasons are given:

The automobile has hit the smaller towns hard, and in most instances they have been halted in their growth, where they have not gone backward. With fewer business houses and smaller population, the tendency is to decrease telephone income.

In other cases, the stock was originally subscribed by local business men for business reasons, to preserve the trade territory against invasion from the adjoining town with a telephone system, and their original investment has long been written off in their business books. Poor management, timidity in the matter of asking for rates adequate for the service and enough to pay dividends, inertia and sloth are other reasons for no dividends being paid.

Quarterly Report of Tri-State Company of St. Paul, Minn.

The Tri-State Telephone & Telegraph Co., of St. Paul, Minn., reports gross earnings of $1,283,359 for the three months ended March 31, an increase of 5.9 per cent over the first quarter in 1924. Expenses totalled $942,038, an increase of 5.68 per cent, while the net earnings after interest charges amounted to $268,895, an increase of 7.65 per cent.

The net increase in property values for the quarter has been $303,699, largely representing purchases of exchange properties in the western part of the state. There has been issued, since January 1, $165,270 par value of preferred stock, the proceeds being used in the purchase of the exchange properties before mentioned.

President George W. Robinson reports that the company continues in a position to liquidate all claims on demand, with $1,090,359 in cash and invested securities, as compared with $533,278 in current and accrued liabilities.

Pomona Valley System Makes Favorable Showing in 1924

The Pomona Valley Telephone & Telegraph Union, of Pomona, reports to the California Railroad Commission its 1924 operating revenue at $144,045.56, as compared with $134,393.08 for 1925. The operating expenses, excluding taxes for 1924, are reported as $114,737.70, and at $106,769.87 for 1923, leaving net operating revenue of $29,307.86 for 1924, and $27,623.21 for 1923.

During 1924 taxes charged to operation amounted to $10,111.15, and for 1923 to $7,765.40. Deducting the taxes leaves operating income of $19,196.71 for 1924, and $19,857.81 for 1923. Adding to the operating income, the non-operating income of the company results in a gross corporate income, (which represents the amount available for interest, amortization of debt discount, other fixed charges, non-operating expenses, dividends and surplus), of $19,196.71 for 1924, and $19,857.81 for 1923.

A. T. & T. Co. Reports for First Quarter of This Year.

For the quarter ended March 31 the American Telephone & Telegraph Co. reports total earnings of $43,067,366, comparing with $36,790,563 in the same quarter of 1924. In the year covered between the two sets of figures the number of telephones in use over the country increased 210,000, and there was a corresponding extension of the telephone plant.

Net earnings for the quarter after expenses and taxes were $31,197,443, against $25,633,772. After allowing for interest charges and quarterly dividends there was a balance of $6,843,964, compared with $4,700,235 in 1924. The current figures are subject to minor changes when final figures for March are available.

Glasco (Kans.) Telephone Co. Sold to B. R. Hemphill.

The Glasco Telephone Co., operating about 500 stations at Glasco, Kans., and vicinity, has been purchased by B. R. Hemphill, of Beloit, Kans., for a consideration of $15,350 plus the outstanding indebtedness, which amounts to something over $3,000. Mr. Hemphill is manager of the United Telephone Co.'s plant at Beloit.

From Factory and Salesroom

American Electrical Works Celebrates 55th Anniversary.

The American Electrical Works, of Phillipsdale, R. I., is celebrating its 55th anniversary this year. The company was founded in 1870 by Eugene F. Phillips and in 1882 was incorporated under its present name. It was one of the first—if not the first—manufacturers of telephone cable in this country, having furnished cable for some of the original experimental lines.

The 55th anniversary catalog of the company shows its progress and development by presenting photographs of the various plants it has occupied from time to time. Two of these plants are shown on this page, the one occupied from 1870 to 1880 and the present plant. A very striking contrast is afforded by these two pictures.

Building in Which Amelectric Products Were First Manufactured, in 1870.

In the beginning the company's product consisted of insulated wire for telegraph and district messenger service. As the electrical and power industries developed the company expanded, adding to its product all the different kinds of wire and cables required by telephone, electric light, power and railway companies. This required the continued enlargement of the company's plant and the increasing of its production facilities.

The present plant of the American Electrical Works covers a large area and consists of many modern buildings, provided with up-to-date equipment, with excellent facilities for the expeditious shipment of its products to all parts of the country.

The 1925 catalog of the American Electrical Works contains more than 200 pages of valuable information for its customers, including in compact form many valuable wire tables and much helpful data and engineering information.

In addition to specifications and other information concerning "Amelectric" wires and cables for every need in the electrical fields, the catalog presents information on the conductivity of copper, temperature coefficients and much general information of interest and value to telephone and electrical men.

It is issued in loose-leaf form, with a handsome and durable binder, in order that changes and additions issued from time to time may be inserted in their proper place.

Sales offices are maintained by the company in New York, Chicago, Boston and Cincinnati. Its Canadian branch is located in Montreal, Que., and is known as the Eugene F. Phillips Electrical Works, Ltd.

Following are the officers of the American Electrical Works, of Phillipsdale, R. I.: President, Frank N. Phillips; vice-president, Eugene R. Phillips; manager, C. H. Wagenseil; treasurer, J. E. Hayward; secretary, W. C. Ingerson; assistant treasurer, S. F. Warden; general sales manager, E. H. Hammond.

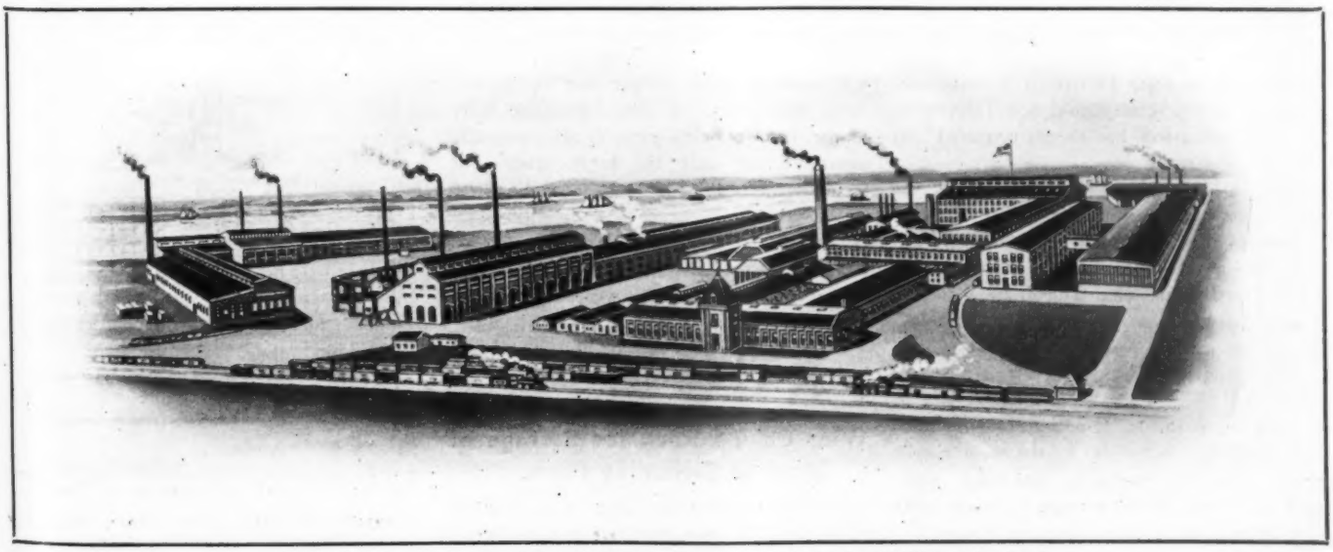
National Carbon Co.'s New District Office at Pittsburgh.

Rapid increase in the demand for Eveready products in the Pittsburgh territory has led the National Carbon Co. to establish on June 15, a new district sales office and warehouse at 600 Second Ave., Pittsburgh, Pa., which will carry complete stocks of Eveready flashlights, Eveready radio batteries, Columbia Eveready dry cells, and Eveready miniature lamps and automotive brushes.

The new district will be under the direction of W. H. Haile, district manager, and R. P. Tolles, assistant district manager, who will have charge of the region comprising Ohio, West Virginia, the eastern portion of Kentucky, the western portions of Pennsylvania, New York and Virginia, and the two most westerly counties in Maryland.

The decision to open the new depot came as a result of the difficulties experienced in keeping up with the orders of the jobbers and retailers in the Pittsburgh district, whose business assumed such proportions that stocks were exhausted before new supplies could be forwarded.

All Eveready products will be sold f. o. b. Pittsburgh with the exception of dry cells. A stock of these will be carried, but they will be sold f. o. b. the established free delivery points of Jersey City and Fremont, Ohio, as heretofore. All orders and correspondence referring to service or other subjects should be



Present Modern Plant of the American Electrical Works in Phillip sdale, R. I.

directed to the Pittsburgh office. The only exception to this rule is that remittances and credit correspondence should be forwarded, as usual, to Long Island City, N. Y.

Telephone Company Uses Ford Trucks in Construction Work.

The Piedmont Telephone & Telegraph Co., of Gastonia, N. C., uses Ford trucks to carry heavy equipment and supplies necessary in the construction and maintenance of its telephone and telegraph lines, one of which is reproduced on this page. The company also operates a fleet of 11 Ford roadsters which are used by foremen and executives for rapid transit troublemen from one place to another in the maintenance of its extensive telephone system.

International T. & T. Corp. Buys French Manufacturing Company.

Colonel Sosthenes Behn, president of the International Telephone & Telegraph Corp., announced on June 11 that a "substantial interest" in the Campagnie des Téléphone Thomson-Houston had been acquired in France.

The latter was recently organized to take over the manufacturing and sales activities of the telephone department of the Compagnie Francaise Thomson-Houston. The International Telephone & Telegraph Corp. recently took over the telephone services of Spain.

Regarding the French investment, Col. Behn said:

"The cooperation resulting from this association of interests in the new company, which is mutually beneficial, will tend to stimulate its foreign business and to reinforce its strong position in France."

The Thomson-Houston electrical interests have been closely identified with the international activities of the General Electric Co.

The International Telephone & Telegraph Corp. has declared the regular quarterly dividend of $1.50 per share on the capital stock, payable July 15 to stockholders of record June 27.

Personal.

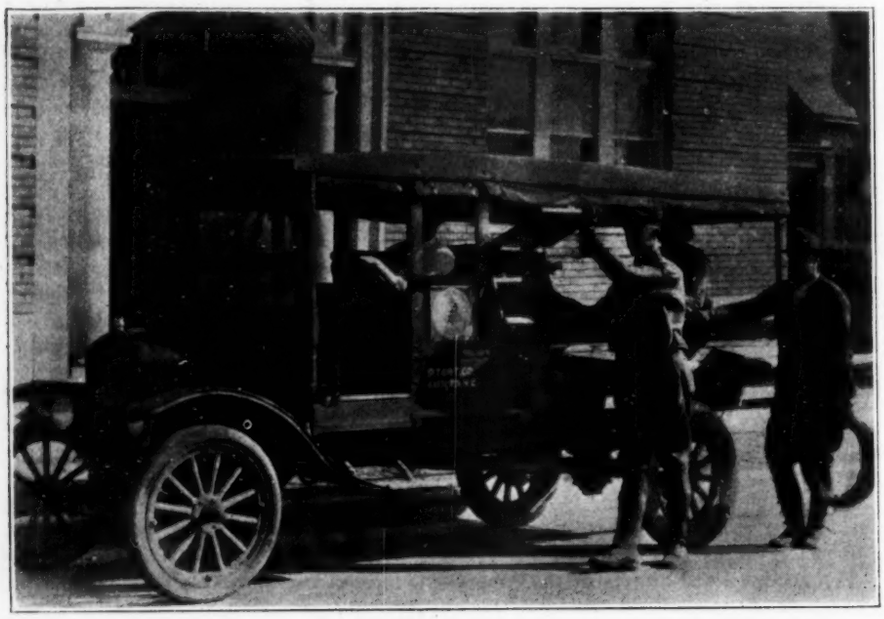
A. A. Burch, general manager of Automatic Telephones, Ltd., Sydney, which is exclusive sales agent for Strowger automatic telephone equipment in Australia and New Zealand, paid a visit to Chicago recently in connection with negotiation for equipment for extensions to the Sydney automatic telephone net work.

The Australian Post Office authorities, according to Mr. Burch, are thoroughly wide-awake to the necessity of keeping ahead of modern developments. The conversion of the Sydney network, with the completion of the extensions now under way, will be about 65 per cent completed. It is the policy of the Australian telephone authorities to convert to automatic operation not only the large cities, but most of the provincial cities as well.

Mr. Burch reports that conditions in Australia are now very favorable. Crops have been excellent, as is the wool supply, while there has been a reasonably good amount of rain.

Mr. Burch is now in England on a brief visit before returning to Australia.

General Manager A. A. Burch of Automatic Telephones, Ltd., Sydney, Pays Visit to Chicago.



One of the Ford Trucks of the Piedmont Company of North Carolina.

Wire Chief's Rack for Storage of Machine-Switching Parts.

The Lyon Metallic Mfg. Co., located at Aurora, Ill., has designed and marketed an unusually efficient wire chief's parts rack.

The drawers and shelves of this rack are laid out for the storage of machine-switching parts and, as we understand, is being used very successfully in quite a number of machine-switching exchanges. It is built up of three individual sections, any of which may be secured separately. The detail sketch illustration gives the overall dimensions, size of various boxes and openings. The shelves are adjustable vertically on 1½-inch centers; bin dividers horizontally on 3-inch centers. Sections can be had with or without swinging doors. The racks are all made of steel and finished in green baked enamel.

The Lyon Metallic Mfg. Co., one of the largest manufacturers of steel equipment, has issued a 24-page catalog devoted entirely to equipment for the telephone industry. This catalog can readily be secured by writing the company for its Telephone Bulletin No. 314.

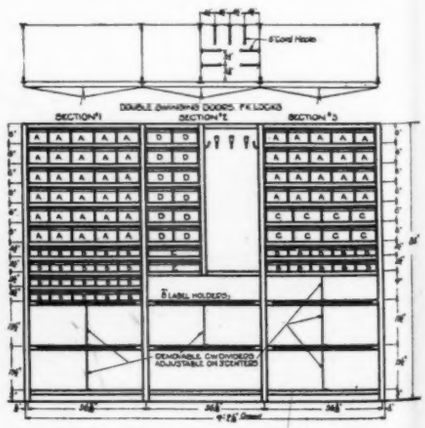
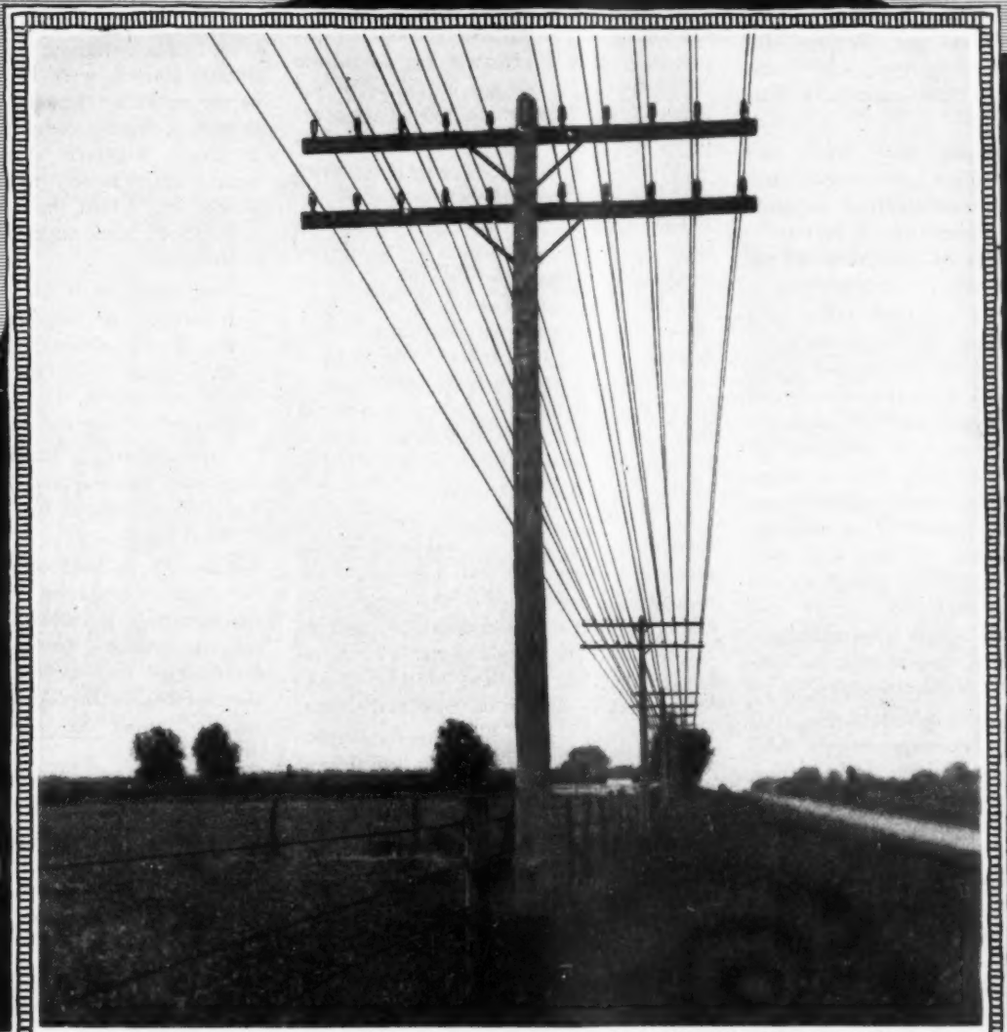


Diagram of Steel Wire Chief's Rack for Machine—Switching Parts.



"P & H" Butt-Treated Poles in lines of the Empire Telephone Co., Bradford, Ill.

Cedar Poles plus "P & H Process" equals Long Life

There isn't any doubt or guess about the long life and low maintenance cost of "P & H Process" Cedar Poles. They're absolutely assured by our written guarantee of full sapwood penetration to a depth of one-half inch.

All your cedar pole needs promptly supplied—Northern White or Western Red, Butt-Treated or untreated.

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BOOK REVIEWS.

TELEPHONE COMMUNICATION. By Charles A. Wright and Albert F. Puchstein. Published by the McGraw-Hill Book Co., 370 Seventh Ave., New York. 515 pages, 6 ins. by 9 ins., with 294 illustrations. Price $5.

Students, engineers, wire chiefs and plant men will find much of interest in this book, despite the mathematical explanations which are necessarily a part of a proper presentation of the elements of transmission principles.

The first part of the book takes up a general discussion of the telephone problem—sound and speech, service and equipment, telephone and telegraph circuits and telephone transmission and its measurement. Part two deals with telephone apparatus and telephone lines. The six chapters of this section discuss transmitters, receivers, the transformation of medium-frequency alternating currents and electromotive forces, resistance, inductance and capacitance, distribution of current and electromotive force over telephone lines, and electrical filters, transmission line impedances and equivalent networks.

Part three is especially interesting as it deals with recent developments in telephone communication, taking up the theory, principles and operation of vacuum tubes, telephone repeaters and public address systems, multiplex or carrier-current telephony and submarine telephone cables, radio telephony, concluding with a chapter on the value and development of telephone service with a summary of methods of increasing the range and utility of telephone circuits.

The maintenance of telephone plant is discussed in part four. This deals with methods and routines for locating and removing faults and the various forms of testing employed. Inductive interference and crosstalk are discussed with methods for measuring them.

The appendices give the theoretical fundamentals, which apply directly to medium-frequency apparatus and lines, and 35 laboratory exercises dealing with transmission.

Practically every phase of telephone communication except machine switching is discussed. References are given at the end of each chapter to other works from which further information upon various points may be obtained. Questions on the subject matter and practical problems add to the value of the book, particularly to the student.

TRANSMISSION CIRCUITS FOR TELEPHONIC COMMUNICATION. By K. S. Johnson. Published by D. Van Nostrand Co., 8 Warren St., New York. 326 pages, 6 ins. by 9 ins., with many illustrations. Price $5.

The text of this book is the material which was developed for one of the special out-of-hour courses through which members of the technical staff of the Bell Telephone Laboratories, Inc., obtain the benefit of the technical information and experience of its experts. The matter was originally printed privately for use within the laboratories, but the character of the material and method of presentation attracted so much attention and resulted in so many requests for a wider circulation that it was made available for public use.

The text matter covers the general theory and principles which are applicable to the development and design of circuits and lines for association with such telephonic instruments as transmitters, receivers and vacuum tubes. The detailed characteristics and methods of design of these instruments are not considered, as they are covered by other special courses for which, however, much of the material in this book is a prerequisite.

In the first two chapters fundamental facts about the voice, ear, transmitter, and receiver are presented with a review of the measures of transmission efficiencies. Circuits involving simply transmitters and receivers and the simple series circuit on long connections are next considered, followed by a discussion of Kirchhoff's laws.

Transformers and transformer and transition losses are considered at length and the practical importance of Thévenin's Theorem demonstrated. The calculations of transmission losses of various kinds is dealt with preparatory to a discussion of substation circuits and the treatment of passive networks as equivalent smooth lines.

A discussion of transmission characteristics of telephone lines is followed by chapters on loaded circuits, telephone repeaters, resonant and anti-resonant circuits. Chapters on the theory and design of wave filters and corrective networks or equalizers are followed by the concluding chapter, on superimposed circuits. In the appendices are presented formulae for various quantities, functions and networks.

The text assumes that the reader is familiar with the elements of alternating current theory and the operations of differential calculus.

Dependable Switchboard Plugs With Insulation in One Unit

Telefon Fabrik Automatic, 7 Amakiegade, Copenhagen, Denmark, manufactures all types of switchboard plugs equipped with its patented insulation in one unit. Its plugs are in use on five continents, which is convincing testimony as to their efficiency and durability.

In the half-page advertisement of the Telefon Fabrik Automatic, which appears on page 260 of TELEPHONY's 1925 Directory of the Telephone Industry the words, "any type of plug," should have appeared under the diagram of the patent on the one unit insulation.

Increasing Telephone Demand Requires More Brass and Copper.

More than 1,290,000,000 copper and brass parts, weighing approximately 33,000,000 pounds, were in service last year in the nation's telephone instruments, according to figures compiled by the Copper & Brass Research Association. These figures refer merely to the familiar appliance into which the message is spoken and do not include wires or other telephone necessities.

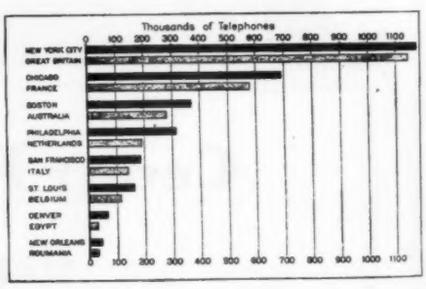
Over two pounds of brass and copper, distributed in 80 individual parts, will be found in the ordinary telephone instrument. There are 21 copper and brass parts in the transmitter, 13 in the receiver, 21 in the cords and in the desk stand itself 25.

Consumption of brass and copper in telephone manufacture is increasing as the public's demand for telephone service is met.

Although in 1920 copper and brass in the country's telephone instruments totaled approximately 1,066,000,000 parts, the latest computation discloses an increased consumption in four years in instruments alone of 230,320,000 copper and brass parts.

Single Cities Have More Telephones Than Some Countries.

Telephone facilities are so much more plentiful in the United States than elsewhere that a single American city will often be found to have more telephones



Graphic Illustration of Extent to Which Single U. S. Cities Exceed Foreign Countries in Number of Telephones.

than an entire foreign country. For example, New York City has more telephones than the whole of Great Britain; Chicago has more than all France. There are more telephones in the exchange area of Boston than there are in the entire Commonwealth of Australia. The whole Kingdom of Italy boasts fewer telephones than the city of San Francisco; Belgium has fewer than St. Louis, and so on.

It would be difficult to find more convincing proof of America's telephone supremacy than is afforded by the accompanying diagram. It is a graphic illustration of the extent to which these individual cities in the United States exceed whole foreign countries in number of telephones.

COLUMBIA
TRADE MARK REGISTERED
GRAY LABEL
DRY CELL
FOR TELEPHONE
SERVICE
This dry cell combines both quality and service in the highest degree. Its quick recuperative power guarantees the greatest effciency, reliability and long life for telephone use.
NATIONAL CARBON CO. Inc.
NEW YORK, N.Y.
ATLANTA, CHICAGO, CLEVELAND
KANSAS CITY, LONG ISLAND CITY, SAN FRANCISCO
MADE IN U.S.A.
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POSITIVE TERMINAL IN CENTER

COLUMBIA Gray Label Batteries are especially built for the exacting requirements of telephone service—sharp, high work peaks; long, low valleys of rest. On the closed circuit they are alert, vigorous, vigilant. On the open circuit they sleep quietly, dreamlessly; no muttering, no corrosive wastefulness. Great endurance for long calls, strength that keeps itself under complete control when idle.

Because they save their energy for useful work, Columbia Gray Label Batteries cost less per month of service. Fahnestock spring clip binding posts at no extra cost to you.

Manufactured and guaranteed by

NATIONAL CARBON COMPANY, INC.
New York San Francisco
Canadian National Carbon Co., Limited, Toronto, Ontario

Columbia Telephone Batteries

Best by Test—They Last Longer

Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision Over Telephone Companies—Decisions of Courts in Matters of Interest to Public Utilities and Actions of City Councils Relative to Franchise, Rates and Service

Poor Management Provided Poor Service at Less Than Cost

The tragedy of the small telephone company that is poorly-managed and becomes an ineffective instrument for service is outlined in an order just issued by the Nebraska State Railway Commission granting an increase in rates to the Dundy County Mutual Telephone Co. While the company is operated under corporate organization, the par value of the stock being only $10 and ownership being distributed among 210 stockholders, the management has become very much decentralized, says the commission, until in recent years there has been practically no management at all. No dividends were ever paid, the purpose being to operate as a cooperative company.

The case is so typical of the efforts so often made to run a business on a benevolent basis that the story is worth printing. The company serves 49 business subscribers in the county-seat town of Benkleman, 126 residence and 210 switching subscribers. The system is entirely grounded and the portion owned and maintained by the company is confined to the city limits, all farm circuits being owned and maintained by farmers' companies. The rates charged were $1.50 for business, $1 for residence and $4 a year for switching.

As a result of the no-dividend-paying policy the property has reached a stage where extensive reconstruction is imperative if any sort of service is to be rendered, but nobody will furnish the necessary added capital. The plant originally cost $8,000, but its appraised value is less than $5.000 now, with a condition much below standard.

The commission says that not only is it impossible to sell stock in the community, with which to raise funds to replace the property, but under the present financial status the credit of the company is such that nobody will loan it any money.

The service situation has become so serious that the city council refuses to grant an extension of the franchise unless extensive improvements are made in the property. Nobody protested against any increase in rates, as it was apparent that only from increased revenues could the company get any money with which to make the plant and the service better.

The commission says that under circumstances of this kind, operating revenues and expenses do not lend themselves to the requirements of accounting formulas. The situation constitutes an emergency that apparently can be met only by taxing the users. Throughout the entire life of the company the rates have been below normal. The property was never adequately maintained and such service as was provided was at less than cost. How expensive this sort of management may become is shown by the fact that the company keeps a lineman busy at $85 a month keeping the plant together.

An expenditure of from $2,000 to $3,000 is necessary to put the plant in service shape. Part of this will be for new and additional property, and to that extent it would be a proper charge against capital. An allowance for maintenance and depreciation which will take care of the situation cannot be predicated on any percentage of the depreciable property, but to keep the accounting history straight, the company is required to set up $1,000 a year until reconstruction has been had.

The commissioners ordered a new rate schedule effective July 1 of $2 for business, $1.50 for residence and $6.00 a year for switching service. This will give about $5,000 a year gross income and leave over $1,000 net. This will give about $700 a year surplus which can be applied for the next two years at least, in getting the company into service condition.

Asks Court Aid in Establishing Toll Rates

The Peoples Telephone Co., of Bryant, Ind., filed suit in the Jay Circuit Court on June 10, seeking an injunction against the enforcement of an order by the Public Service Commission of Indiana and the Pennville Telephone Co.

Some time ago the plaintiff company filed a petition with the commission seeking discontinuance of the free toll service between Pennville and Bryant and the establishment of uniform toll rates between the two towns, which are about 12 miles apart. The commission's ruling in the matter was against the petitioner, denying establishment of toll charges between the two points.

Cut in District of Columbia Rates Restrained by Court

New telephone rates, designed to affect approximately 40,000 subscribers of the Chesapeake and Potomac Telephone Co., District of Columbia, which were announced by the Public Utilities Commission May 13 as effective June 10, were temporarily set aside on June 9 by Justice Hoehling in equity court in an order enjoining the commission from attempting to enforce the rates.

The restraining order will hold good until autumn or winter, when the case will be heard on its merits. The company will furnish a general undertaking bond to cover all cash collected in excess of the new rates.

The company objected to a valuation of $18,576,956 placed on its properties by the commission and insisted that the valuation figures should be approximately $26,000,000.

The new rates called for a reduction in unlimited residence service from $5 to $4.75 a month and an increase in calls on limited residence service, for which subscribers pay $2.50 a month, from 35 to 40 calls.

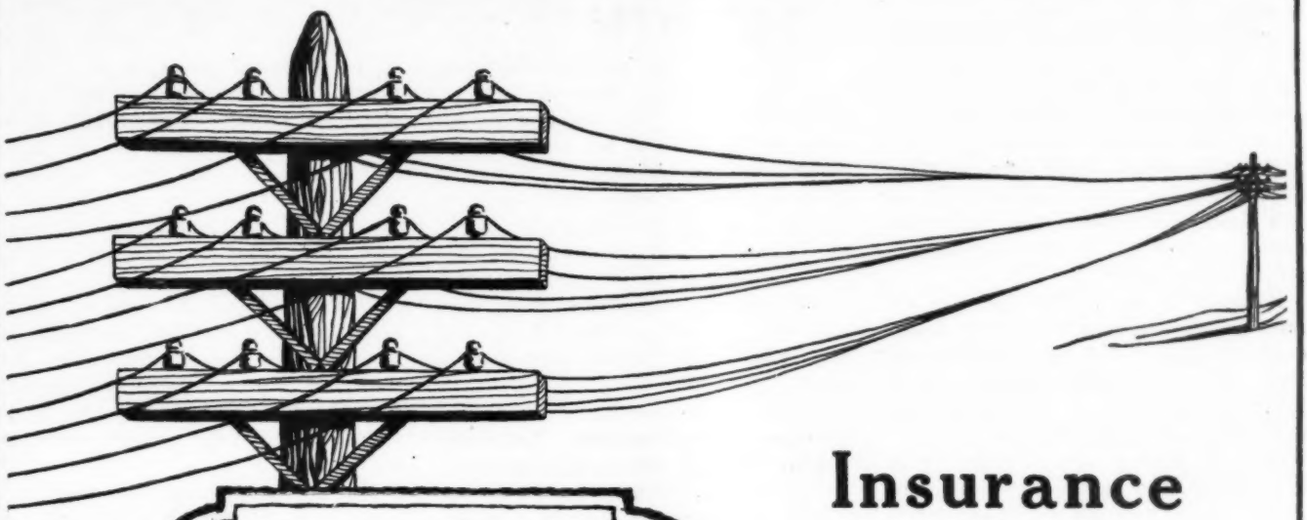
According to Attorneys George P. Hoover, Alexander Britton and Dozier A. DeVane, counsel for the company, these rates would mean a loss in revenue amounting to approximately $84,000 a year, or a return of about 5½ per cent on its invested capital. The commission contended, through Corporation Counsel Francis H. Stephens, that the new rates would yield a return of 7½ per cent.

The valuation controversy, according to Mr. Stephens, centers chiefly about the opinions and testimony of expert witnesses in the persons of utility engineers, as to reproduction costs and the variations and differences in opinions and testimony.

Nebraska Commission Asks Modification of Modified Decree.

The Nebraska State Railway Commission is not content to rest its rate controversy with the Northwestern Bell Telephone Co. on the recent decision of the federal court permitting the company to make just and reasonable rates pending the adoption by the commission of a different schedule from that now in operation, in order to stop the confiscation that is now going on.

The commission filed an application for a modification of the modified decree, and the attorneys were to have argued and submitted the matter to the court on June 20. The objections are that the decree permits the company to charge rates bringing a return of 8 per cent on the investment, which is excessive under the findings of the special master, who said 7½ per cent was ample; that the case is one for three federal judges to sit and decide; that the court is without jurisdiction to authorize higher service rates than those that it asked for before the railway



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The Policy

Of Lynton T. Block & Co. is to issue the most satisfactory and comprehensive insurance to be had anywhere—

Furnishing absolute protection at cost

Embodying all the standard features and more

Covering special classes and selected risks

Selling at established rates

Returning savings at the end of the policy period, depending upon the individual experience of the risk

Giving a claims service that is not equalled elsewhere

It is an honest policy, carried out in an honest way and gives a square deal under all conditions.

This forms the creed of every member of the organization and has built up the reputation of Lynton T. Block & Co. until it is one of the best and most favorably known in the Mississippi Valley.

LYNTON T. BLOCK & CO. PROTECTION AND SERVICE

WORKMEN'S COMPENSATION
EMPLOYER'S LIABILITY
PUBLIC LIABILITY
TEAMS LIABILITY
CONTRACTORS' LIABILITY
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UNDERWRITERS OF SELECTED CLASS INSURANCE AT A SAVING

Utilities Indemnity Exchange
Employers Indemnity Corporation
Chamber of Commerce Bldg.
ST. LOUIS, MO.

When writing Lynton T. Block & Co. please mention TELEPHONY.

commission, which it now says are confiscatory.

Judge Munger postponed the hearing until two other judges can sit with him. These will be Judge Kenyon of Iowa and Judge Woodrough of Omaha. The chief point is whether after a federal court has held the commission rates to be confiscatory, a company must continue to operate under rates that produce that result until such time as it can get a commission to give it higher rates.

President W. B. T. Belt says that the rates of the company have been inadequate for years, and that the time has come when the public should treat it fairly in this respect. All during that time the public has enjoyed telephone service of good quality at prices relatively lower than anything else they buy.

"The public demands and is entitled to reliable telephone service," he adds. "The employes who help supply such service should be fairly paid. And those who invest their money to build telephone plant to meet the needs of the public for service must be paid a fair return or the necessary new money cannot be obtained. The interests of these three are identical. The interests of all can be served only when such charges for telephone service are made under such as are necessary to pay expenses and earn a fair return on the value of our property.

"It is the policy of our company to refrain from increasing its charges for service until every effort has been exhausted to operate satisfactorily on existing revenues. But when this cannot be done without impairing the quality of the service, we believe it our duty to seek an adjustment in rates. Our efforts to secure adequate rates in Nebraska cover a period of nearly seven years. We asked, in September, 1918, for a 20 per cent increase, and in October we got a 10 per cent increase that was to expire in six months.

Before this emergency schedule of rates expired, in April, 1919, we asked for a slightly higher exchange rate schedule, and we got these new rates in May, but only for the remainder of the year. When that time expired they were continued for a year. However, because of continued high costs the company on September 20, 1920, asked for an increase on all exchange rates. On November 30 of that year we were given permission to add a surcharge of 10 per cent, which was to continue in force for seven months, but was later extended until December 31, 1921.

It was evident before that date expired that a level of prices materially above the 1914 level had been permanently reached, and we asked for authority to establish a complete new schedule of rates to take the place of the temporary surcharge rates. The schedule applied for was such as we hoped might eventually result in satisfactory earnings, but it is now clear that it would not have produced a fair return.

November 4, 1922, the commission ordered the surcharge removed and increased toll rates. This would have given us a return of 2.92 per cent on our property. Then followed the company's injunction suit, recently decided in its favor. In spite of the fact that toll rates were increased and the surcharge continued, we earned but 4.55 per cent. That is why we are now asking the right to make our own rates, limited as fair and reasonable, until the commission again acts."

Kansas Commissioner Learning Many Things About Companies.

Lew Hussey, chairman of the newly-appointed Kansas Public Service Commission, is finding the telephone business in Kansas a most interesting one. Just back in Topeka from conducting several telephone hearings, Mr. Hussey declares a church or school row hasn't anything on a telephone row in some communities in Kansas. The hearing is a free-for-all.

"Some of the mix-ups are awful to try to unscramble," says he. "A patron complains of service. When we chase it down, it develops that the wire—perhaps strung along fence posts and lying on the ground—belongs to one party, the telephone instrument to another, and still another is furnishing the service. And they want us to untangle that to every one's satisfaction!"

Proposed Rate Schedules for Michigan Bell Company

New rate schedules for the Michigan Bell Telephone Co., which would increase rates in all exchanges, with the exception of Saginaw, Bay City and four of the smallest villages in the state, to make up for a 5.2 per cent proposed cut in Detroit's rates, were submitted to the Michigan Public Utilities Commission on June 11 by M. K. Toeppen, the commission's chief engineer.

Mr. Toeppen and his assistants have completed the work of making an audit, inventory and appraisal of all of the properties of the Michigan Bell, in compliance with the commission's order of June 13, 1924. In his report of the results of his work he gives three valuation figures which will form the basis for the new valuation determined by the commission.

All stocks, bonds, notes outstanding, and surplus, representing what the present owners of the Michigan Bell company have actually put into it, total $59,478,498, according to the report. The book cost, adjusted, less accrued depreciation, is placed at $61,480,243. The 1924 reproduction cost less accrued depreciation, totals $83,647,133.

The present valuation of $39,000,000 will undoubtedly be vastly increased by the commission as a result of this appraisal and inventory.

For several years Detroit has objected to the condition under which it maintained it paid the company more than its fair share of net return to make up for a deficit in return from the outside exchanges. That is the reason why a decrease of 5.2 per cent in its rates is recommended for Detroit while out in the state the average increase asked is 17.2 per cent.

"The details of the various calculations show that the state exchanges and the toll system are contributing less than their fair share to the grand total and that the deficiency is made up by the earnings in Detroit," says Mr. Toeppen in his report.

The present revenue from Detroit is found to be $13,970,501, and it is recommended that it be reduced to $13,239,680. Detroit is now paying $730,821 more in revenue than its fair share, according to the report. The state exchanges show a present revenue to the company of $7,405,005, and that would be increased to $8,680,737, on the ground of $1,275,732 as compared with the same basis in Detroit. The toll system would also be increased in revenue from $4,433,508 to $4,823,961 to make up its deficit of $394,453.

Hence Detroit would receive a rate decrease of 5.2 per cent, the outstate an increase of 17.2, the toll system an increase of 8.9 per cent, making an average increase in rates for the entire company service in Michigan of 3.6 per cent. Early this year the commission made some decreases for Detroit, which would be included in and comprise that much of the proposed total decrease of 5.2 per cent.

It is understood the utilities commission will follow as far as practicable its past rule of fixing valuation more on the basis of book cost, less depreciation, than on any other one base. It will, of course, take into consideration reproduction cost new, less depreciation, but the commission insists that a fair book cost shows actually what has been invested in a utility and when that investment is being properly used the investor is entitled to a fair return on it. When reproduction costs are used, they will vary from time to time, and the utility owner will be compelled to gamble on his business.

Hearings on the proposed rate schedules began before the commission on June 25.

Asks for Increased Rates and Differentials for Various Sets

The Curtis Telephone Co. has asked the Nebraska State Railway Commission to give it additional revenues needed by authorizing it to increase rates in some particulars. The present business rate

Federal Telephone Equipment

The illustration shows one of the many FEDERAL STANDARD TELEPHONES installed in the power houses of the U. S. Lighthouse Service.

FEDERAL TELEPHONES were chosen for these installations because they are built for a LONG LIFE of service, their LOW COST of maintenance, requiring MINIMUM ATTENTION and their ability to absorb abuse.

Use Federal Telephones when making new installations or replacing old equipment and enjoy this freedom from maintenance cost.

Federal Telephone Manufacturing Corporation
Buffalo, New York, U. S. A.

Exide
BATTERIES

The excellence of this country's telephone service is largely due to the excellence of the equipment. The adoption of Exide Batteries in telephone service is almost universal.

THE ELECTRIC STORAGE BATTERY CO.
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Exide Batteries of Canada, Limited, 153 Dufferin St., Toronto

EVER-PROTECT
CABLE COMPOUND
Is Ideally Adapted for Underground Cable Construction Without Conduit

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And so easy to apply!—write for illustrated booklet which will instruct you in the many important time and money saving uses for EVER PROTECT

Have You a Drum on Hand for Emergency? Order from your jobber or direct.

National Cable Compound Co.
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CELESTIAL FIREWORKS
JULY FOURTH
Chapman Arresters
will do the catching rain or shine.
Are you all set for the game?
Minnesota Electric Co.
Minneapolis, Minn.

A leader still leads

IDEAL is the pioneer in commutator resurfacer manufacture. Ideal always was admitted to be the leader. Now, simply to remain worthy of that reputation, we announce an improvement in process that assures better service and longer life and greater uniformity of our product.

We know our 12000 repeat order customers appreciate our constant effort to keep Ideal in the lead.

Do you want to try one of the new stones for ten days, free? Write, describing your equipment.

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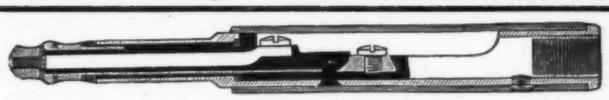


Switchboard Plugs, All Types, U. S. Patent 1302471
INSULATION IN *ONE* UNIT. IN USE ON FIVE CONTINENTS
TELEFON FABRIK AUTOMATIC
7 AMALIEGADE COPENHAGEN DENMARK

CEDAR POLES Western Red Cedar
QUICK SHIPMENT—BEST QUALITY—W. R. C. A. or N. E. L. A. SPECIFICATIONS. Large stocks—low prices—ask for delivered prices.

HALL BROS. CEDAR CO., Coeur d' Alene, Idaho, or Kamloops, B. C., Canada

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

is $2 a month. The company desires permission to charge $2.50 for wall telephones and $2.75 for desk instruments.

No increase is asked in the present rate of $1.50 for wall residence telephones, but 25 cents extra is desired for desk telephones. The company also desires authority to charge 50 cents a month for extension sets.

Agreement Made To Eliminate Dual Telephone Service.

Negotiations that have been in progress for some time between the Lincoln Telephone & Telegraph Co. and the Hamilton County Farmers Telephone Association which have had for their object the cleaning up of the duplicated telephone systems at the town of Hampton, Neb., have progressed to the point where the former has agreed to sell out and retire from the field on the payment of whatever sum the state railway commission appraises its property there. This will leave competition in effect at only two major towns in Nebraska, Red Cloud and Blair.

The commissioners will take hold of the matter as soon as the companies can agree upon the basis for appraisal, whether it shall be fair value, original cost or some other method of arriving at a proper figure.

Several times in recent years the people of Hampton have asked the commission to do away with dual service in their town, which is not a very big one anyway, but the commission burned its fingers with the supreme court when it sought to clean up the Red Cloud situation some years ago by issuing an order that was declared by the courts to be beyond its powers. The Hamilton county company has steadfastly refused to sell out. As it never pays any dividends, its stock has no market value, and this made it necessarily a cash deal. The company has about $15,000 cash in one of its funds which it may draw upon.

The Hampton exchange was taken over by the Lincoln company when it bought out the York company many years ago. The subscribers to it have had one added exchange service that they will now lose because these are Lincoln company towns, but they will gain service with the west part of the county and the county seat under a free service agreement.

The amount agreed to be paid is $5,900 for the town property and $4,100 for the rural, with the proviso in the contract that the total sum of $10,000 is all that the Hamilton county company pays, while if the commission engineer appraises it at less, it will get it for less.

The railway commission will be called upon to act on a request and issue an order authorizing the purchaser to make a charge of $1.50 a month to rural patrons of the Lincoln company at Hampton who, by reason of the consolidation, become patrons of the Hamilton county concern. All rural patrons of the latter are required to own two shares of stock —$30 worth—supply instruments and the drop line and pay for repairs. As soon as possible, in a period fixed by the commission, these patrons will have to buy stock on the same basis.

After the completion of the sale and the transfer of the property, the county line between York and Hamilton counties will be considered the zone line between the territory served by the two companies east of Hampton, but rural lines may be extended over county borders in order to accommodate persons wishing service from either company.

The deal will probably be concluded by the first of September. Considerable work will be necessary. The Hamilton company will use the Lincoln exchange at Hampton after the transfer is complete.

A FORMULA FOR PROGRESS AND ACHIEVEMENT

The aggressive, constructive thinker has the key to that state of mind which should be the goal of every autosuggestionist—the unfailing direction of imagination in lines of progress and achievement. Such a person, although bereft of home, family and money, would be able to say:

"I have lost all that I valued, but that was yesterday. I have still myself and its capacity to serve both itself and others. I accept my place in the stream of life and will continue to go forward while life remains.

"Through books I have contact with the great minds of the past; through activity I have contact with today, and through imagination I have contact with the future.

"It may be that my consciousness one day will cease, but on the other hand it may be that consciousness is eternal; in any event, life shall not write me down as a quitter."—Frederick Pierce, Psychologist.

Company Does Not Pay So Asks Authority to Quit.

C. C. Brown, secretary of the Farmers' Telephone Co., a common carrier operating a small switching line out of Maywood, Neb., has asked the assistance of the state railway commission in letting go.

He says that he gets but $1.25 a month from the subscribers and pays 50 cents of this to the Maywood company for switching them. The net is not enough to make it possible to keep up the 15 miles of pole line for 15 subscribers, he says, and that his proposal to sell the plant to the subscribers has appealed to only a few of them.

He suggests that if the commission would make the others believe he is in earnest about quitting business, they might buy the plant.

Appeals to State Supreme Court From Judgment on Injuries.

The Wolbach Telephone Co., Wolbach, Neb., has appealed to the state supreme court from a judgment for $6,000 secured against it for permanent injuries received by John P. Peterson by being run down in the streets of Wolbach by an employe who is alleged to have been driving a service car at an unlawful speed. Originally the action was also against Ole Christenson, the manager, and damages for $26,049 were asked.

The company insists that the verdict is not sustained by sufficient evidence; that it is contrary to the weight and preponderance of the evidence, and was given under the influence of prejudice against the company; that the judgment is excessive and the result of passion and prejudice.

Peterson's attorneys claim that he was hit while on the parking of the street and when he was about to step onto the parking; that the accident was caused by an effort of the driver, who as so many small-town drivers do, was trying to be smart and scare Peterson, or he completely lost control of the patched-up Ford he was driving. They say it was going 24 miles an hour on the business street of the town.

To Consider Separating Depreciation and Maintenance.

At the request of the officers of the Nebraska Telephone Association and representatives of the Northwestern Bell Telephone Co., the Nebraska State Railway Commission will hold a conference in the near future upon the question of changing its present accounting rule with respect to maintenance and depreciation.

For a number of years the commission, over the protests of telephone men, have been insisting upon combining these two accounts. Thus, when an order issued it required the setting up of a certain stated percentage for both depreciation and maintenance; in most cases, 9 per cent, and later in some cases fixed at 10 per cent.

The telephone men insist that each of these items ought to stand on its own bottom. Maintenance means repairs, and it means just so many dollars expended for that specific purpose. Depreciation is equally capable of being set up with exactitude. Past experience has given an excellent line on just what is the average life of certain parts of a telephone plant, and enough should be set up each year to take care of these parts as they are taken out and replaced.

There is also a difference of opinion

on the rule relating to replacement in kind. As the commission has been operating, if a $10 pole is replaced by a $15 pole, the whole cost of the new pole less salvage, is charged to depreciation. The other argument is that only $10 of this is replacement in kind and chargeable to the depreciation fund and the other $5 goes to property account.

It is contended that the result of combining maintenance and depreciation is to distort the account and make the result an inaccurate reflection of profits and other financial results.

Rate Increase Approved for Big Bend, Wis., and Vicinity.

The Prospect, Guthrie & Big Bend Telephone Co., of Big Bend, was recently authorized by the Wisconsin Railroad Commission, to increase its net monthly rates, effective June 1, as follows:

	Old.	New.
Business, one-party	$2.00	$2.25
Business, two-party	1.75	2.00
Residence, one-party	1.75	2.00
Residence, two-party	1.50	1.75
Residence, four-party	1.35	1.60
Business extension	None	1.00
Residence extension	None	.75
Extension telephones, answering only:		
Business	None	.75
Residence	None	.50
Extension bell	None	.25
Seasonal service, summer cottages (per year)	None	15.00
Rural service:		
Business multi-party (per quarter)	4.00	5.25
Residence, multi-party	4.00	4.50

The company operates an exchange at Big Bend, serving 22 local subscribers and 407 rural subscribers. The book value of the property as of December 31, 1924, was $23,525.03 or approximately $55 per station. The commission found that an allowance of $3,060 per annum for depreciation and return upon the investment would be adequate and not unreasonable.

The new rates authorized will increase the earnings of the company approximately $1,150 per year.

New England Rate Hearings in Rhode Island Continue

The hearings before the Rhode Island Public Utilities Commission, during the week of June 9, on the petition of the New England Telephone & Telegraph Co. for increased rates in that state, were largely taken up with the cross-examination of the company's witnesses by City Solicitor Elmer S. Chace of Providence and Chairman William C. Bliss of the commission.

At the request of Mr. Chace for a statement of the expense of the company's rate hearing in Rhode Island, an exhibit was presented showing the expense of inventory and appraisal, together with advertising and sending explanatory booklets to subscribers, to have amounted to $155,580.

President Matt B. Jones of the New England company testified that the American Telephone & Telegraph Co. would furnish the New England financial assistance so long as it is making progress toward getting adequate rates.

The hearing was continued during the week of June 16.

Rate Increase for Markesan Telephone Co., of Markesan, Wis.

The Wisconsin Railroad Commission, on May 29, authorized the Markesan Telephone Co., of Markesan, to increase its net monthly rates as follows:

	Old.	New.
Business, one-party	$2.00	$3.00
Business, two-party	1.75	2.75
Residence, one-party	1.75	2.25
Residence, two-party	1.50	2.00
Residence, four-party	1.35	1.75
Extension, business	.75	1.00
Extension, residence	.50	.75
Extension, bells	.15	.25
Rural service:		
Business, multi-party	2.50	2.50
Residence, multi-party	1.50	1.75
Seasonal service for summer cottages, etc., for a period of six months or less payable in advance	None	12.00
Switching service	*.50	†9.00

*Per month. †Per year.

The rates authorized are effective for service rendered on and after June 1. The company serves 205 local and 216 rural subscribers. The property and plant value as of December 31, 1924, was $28,342.28, which is about $67 per station.

For the past three years, the company has not been earning anything for return upon the investment after meeting depreciation needs. The commission found that a proper allowance for depreciation and return on the investment would be $3,680 per annum. Under the old rates, the company had available for depreciation and return approximaetly $1,300 per annum.

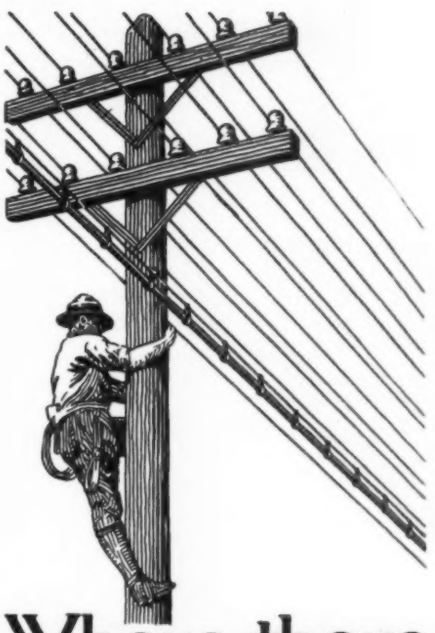
Increased Rates for Jefferson Telephone Co., Juda, Wis.

The Jefferson Telephone Co., furnishing service to 15 local business, 46 local residence and 180 rural subscribers in and about the unincorporated community of Juda, Wis., was recently authorized by the Wisconsin Railroad Commission to increase its business rate from $1.25 to $2 per month; its residence rate, from $1 to $1.25 and its rural rate from $1.25 to $1.50 and to establish a rate of $15 per year for school telephones.

The commission's findings in the case were as follows:

"The property and plant of the Jefferson Telephone Co. consists of a 100-line magneto switchboard, to which are connected 28 local, 18 rural and four toll lines, aggregating about 46 miles of poles and 185 miles of wire.

The book value as of December 31, 1924,



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was $8,506.75, or an average of slightly over $35 per station. Considering the fact that all stations are company owned and all service full metallic, this figure is unusually low, and may unquestionably be accepted. We find that depreciation and return requirements upon the book value of the property will approximate $1,190 per annum.

Operating expenses, exclusive of depreciation, for which no provision has ever been made, were reported at $3,379.45 for the year ended December 31, 1924, or approximately $14 per subscriber station. This amount does not appear excessive and in our opinion could not well be reduced without serious impairment of the service rendered. In fact, an additional allowance of $130 per annum must be made to provide for the cost of fire, public liability, and employer's liability insurance, no insurance of any kind having heretofore been carried. With this adjustment operating expenses for the coming year will amount to not less than $3,510, which, when added to previously estimated requirements of $1,190 for depreciation and return, makes the company's total annual revenue requirements, $4,700.

The company's exchange revenues for 1924 were reported at $2,847.74. Since the application of existing exchange rates to the present number and classification of subscribers would produce annual earnings of $3,477, the reported figure is obviously incorrect and probably represents cash collections from subscribers rather than actual exchange earnings. Accepting the adjusted figure, and adding reported toll revenues of $412, we conclude that the company's total revenues in 1924 were approximately $3,890, or $810 short of revenue requirements.

The new schedule applied for would increase exchange rates in the amount of about $800 per year. Since it would not produce revenues in excess of requirements we believe that it should be authorized, with the exception that the special rate proposed to be applied to schools will be placed upon an annual rather than a monthly basis."

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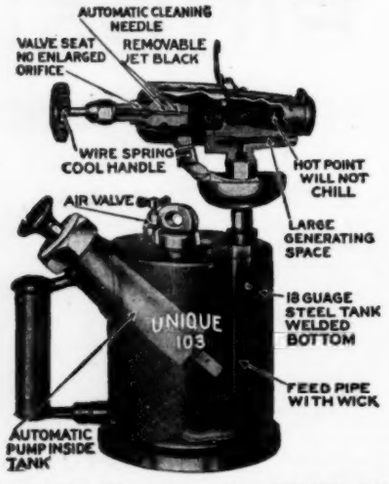

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Grant of Right of Way Held Not a Mere Revokable License.

Where owners of land granted to a telephone company a right of way over such land, to continue "in perpetuity," the court held that, in view of Act April 1, 1912 (P. L. p. 522), absence of the word "heirs" did not make such grant a mere revocable license, despite further provision that, if owners sold land, telephone company could move its lines to owner's adjacent land, as term "in perpetuity" in its generic sense means endless duration.—Central R. Co. of New Jersey v. New York Telephone Co.: Court of Errors and Appeals of New Jersey; 128 Atlantic 160.

Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION

WASHINGTON, D. C.

May 26: The commission approved the purchase of the Southern Bell Telephone & Telegraph Co. from Eugene Morrison of the properties formerly operated by the Iredell Telephone Co. at Statesville, Taylorsville, Troutmans and Stony Point, and vicinities in North Carolina. The agreed purchase price was $106,411.

CALIFORNIA.

June 13: The Happy Valley Telephone Co., of Olinda, authorized to place in effect service charges and regulations heretofore established by the commission, contingent upon its making certain improvements in the service.

June 15: Whittier Home Telephone & Telegraph Co., of Whittier, authorized to withdraw its telephone service in the Montebello district, now served by Southern California Telephone Co. through its Montebello exchange.

INDIANA.

June 3: The commission authorized the Southern Indiana Telephone & Telegraph Co. to increase its rate for switching service to 142 farmers in the vicinity of Bicknell from 33 1/3 to 75 cents per month.

KANSAS.

May 28: On application for authority to increase rates for service at Republic, the commission authorized the Citizens Telephone Co. to place in effect the following rates on June 1: Business, individual line, $1.25 per month; residence, individual line, $1.25; rural residence service, $1.25; business desk sets, 25 cents extra; residence desk sets, 15 cents extra.

MICHIGAN.

June 25: Hearing on proposed rate schedules for Michigan Bell Telephone Co.

MINNESOTA.

July 7: Hearing at St. Paul in the matter of the application of the Northwestern Bell Telephone Co. for authority to increase its rates at Cloquet and Detroit, postponed from June 24 at the request of the Northwestern Bell company. M-1345 and M-1372.

NEBRASKA.

June 15: Application filed by the Curtis Telephone Co. for changes in rate schedule.

June 15: Application filed by the Cozad Mutual Telephone Co. for authority to add 25 cents a month for all desk set service.

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WANTED TO BUY—Telephone Exchange of 300 to 800 subscribers in Iowa, Minnesota or South Dakota. Give full particulars. Box 184, West Bend, Iowa.

June 16: In the matter of the application of the Dundy County Mutual Telephone Co. for increased rates; it appearing from the evidence that company must have additional revenues to finance necessary reconstruction, authority issued to charge schedule asked for for a period of two years.

June 17: Complaint filed by Don W. Fairbrother against Lincoln Telephone & Telegraph Co., relating to extra listing in directory for Lincoln.

June 20: Application filed by Farmers Telephone Co., of Maywood, for permission to quit business and dissolve corporation.

June 20: Complaint filed by Orleans Community Club against Farmers & Merchants Telephone Co., asking for 24-hour service Sundays and holidays and hotel booth facilities.

June 20: In the matter of the application of the Platte Valley Telephone Co. for permission to publish a schedule of rates for its new exchange at Lyman; it appearing from the record presented that the rates asked for are usual and proper, authority granted.

NEW HAMPSHIRE.

July 14: Hearing on proposed rate increases of the New England Telephone & Telegraph Co. for its exchanges in New Hampshire. The new rate schedules have been suspended until October 1, pending investigation as to their reasonableness.

OKLAHOMA.

June 23: Hearing in the case of A. M. Young vs. Southwestern Bell Telephone Co., alleging discrimination in directory listing and inadequate service in Oklahoma City. No. 6726.

June 30: Hearing in the case of Comanche Telephone Co. vs. Southwestern Bell Telephone Co., alleging violation of public necessity law. No. 6702.

WISCONSIN.

June 11: The commission authorized the Basswood Eagle Telephone Co., furnishing service to 70 rural subscribers in the territory adjacent to Muscoda, to increase its rate from $10 to $12 per year, net. The company does not operate a switchboard, switching service being received from the Muscida Telephone Co., at the rate of $6 per year per telephone. U-3199.

June 16: The commission granted the application of the Jefferson Telephone Co., of Juda, to increase its rates for service. U-3233.

June 23: Hearing at Chilton in re application of the Eastern Wisconsin Telephone Co. for permission to increase rates at Chilton, Elkhart Lake, Brillion, Hilbert, Kiel and New Holstein. U-3175 to U-3180 inclusive.

June 24: Hearing at Luxemburg in re application of Luxemburg Telephone Co. for authority to increase rates. U-3259.

June 26: Hearing at Madison in re investigation on motion of commission of rates of Wisconsin Telephone Co. for summer season. U-3248.

June 26: Hearing at Madison in re application by Wisconsin Telephone Co. of rule covering payment of charges for summer season service outside of exchange base rate area. U-3262.

June 26: Hearing at Madison in re application of Murry Farmers Telephone Co. for permission to issue certain notes. SB-2095.

June 30: Hearing at Madison in re application of Oneida Farmers Telephone Co. for permission to increase rates. U-3263.

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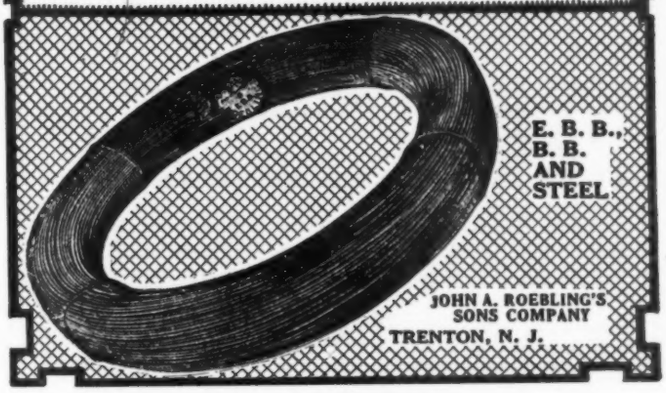

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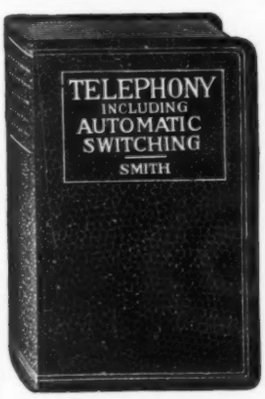
4 Sizes Pat. Nov., 1900

Write for Samples

Blake Signal & Mfg. Co.

BOSTON, MASS.



Worthy of One's Hire—

If a man is to succeed in the business world today he must be "worthy of his hire."

So it is with books. They also must give the reader his money's worth.

In offering "Telephony, Including Automatic Switching," for sale, its publishers have arranged an excellent collection of helpful information and data fully illustrated and up-to-date for the telephone man.

TELEPHONY, including AUTOMATIC SWITCHING, is written by Arthur Bessey Smith, E. E. Automatic switching is certainly being rapidly adopted, and the construction of every switch, relay and contractor in the whole range of automatic devices is clearly presentable.

Pocket size, bound in Leatherette. Gold Stamping, 500 pages, 263 illustrations and Wiring Diagrams. Price $2.50.

TELEPHONY PUBLISHING CORP., 608 So. Dearborn St., Chicago

Northern Western

CEDAR POLES

A full assortment of sizes
Prompt Shipments Assured

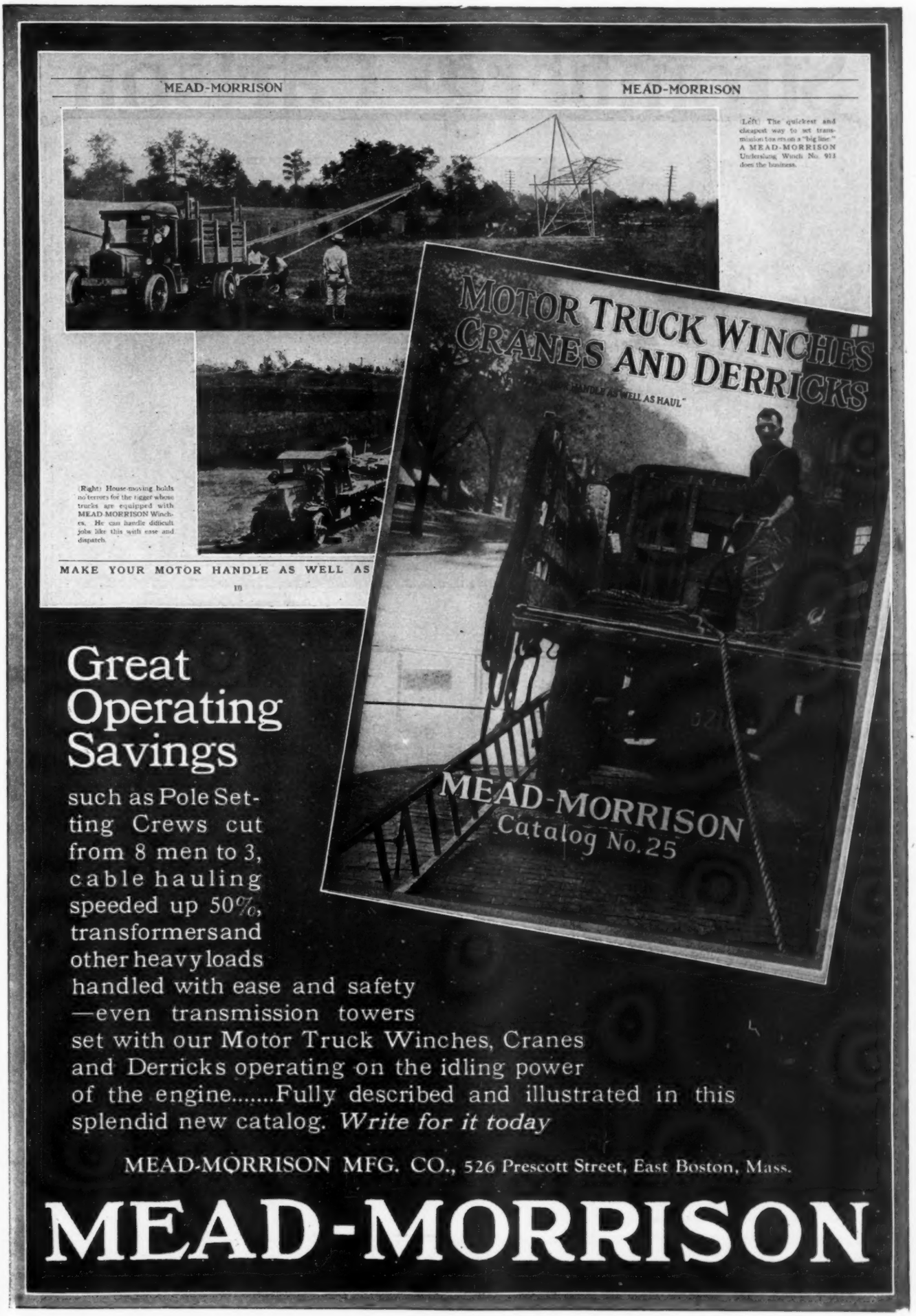
T. M. Partridge Lumber Co.

Lumber Exchange MINNEAPOLIS

BUYER'S REFERENCE

Addressing Machines
A1.
Ammeters
W1.
Anchors, Guy
C3, E4, H7.
Anchors, Twist
H7.
Anchors, Screw
M6, R6.
Apparatus, Fire Fighting
J1.
Appraisers
A2, H3, H4, P5, W2.
Arms and Brackets (for holding telephones)
A4.
Arresters, Lightning (See Protective Devices)
Asbestos, Panel Boards
J1.
Asbestos Switchboards
J1.
Asbestos Wood, Ebony
J1.
Attorneys
B8.
Auditing, Accounting and Systems
B11, C7, H6.
Augers
I4.
Automatic Telephones
A9, K1.
Batteries, Dry
F6, N1.
Bells, Magneto
A4, H5.
Belts and Safety Straps (Linemen's)
K2.
Blank Books (etc.)
F3.
Blow Torches
P8.
Blue Printing Machinery
P7.
Bolts and Nuts
L3.
Bolts (Expansion and Toggle)
H7, L2, N5, S5.
Bond Wires
C9.
Books
M8.
Boxes, Battery
P2.
Bracket, Drop-Wire
P4.
Bridle Rings
H7.
Brushes, Motor and Lighting
N1.
Cable
A5, A7, A8, B4, M1, I1, R3, S7.
Cable, Bare
A4, B4.
Cable, Weatherproof
A4, B4.
Cable Compound
N10.
Cable Reel Carriers
H7, L2.
Cable Rings
C2, N5.
Cable Splicing Joints
J1.
Cable Terminals
A4, C3, R2, S7.
Cabinets
L5.
Carbon
F6, N1.
Cards, Book Forms
W4.
Clamps, Ground (Plates, Cones)
B12, C2, P2.
Clamps, Guy
C3, E4, L2, N5, R2.
Climbers
B6, K2, S2.
Clips, Cable
C2, H7, L2.
Clips, Testing
F5, S8.
Clocks
C1.
Coils, Induction
A4, A5, M5, S8.
Coils, Rewound
E2, P6, R1.
Coils, Resistance
A5, B4.
Coil Winding Machines
B4.
Condensers
A4, A9, F1, L3, M5, S9, W3.
Commutator Resurfacer
I6.
Conduit, Fibre
J1.
Conduit Rods
C9, J1, M3.
Conduit (Creosoted)
A3, P9.
Conduit, Underground
A3, C6, J1, N14.
Connectors, Wire Test
C8, F5, H5, R2, S8.
Construction Specialties
C3, C9, H7, J1, M1, M3, L3, M5, R2, S2, W3, P8.
Copper Cables and Strands
B4, H1, R3, S7.
Cords, Lamp
A4, B4.
Cords, Portable
A4, B4.
Cords, Telephone & Switchboard
A9, B4, H1, R5, S9.
Counters
V3.
Cross Arms
A3, P9, G4, W3, S4.
Diggers
I4.
Drafting Room Supplies
P7.
Drill, Electric
N13.
Duct, Underfloor
J1.
Electrical Instruments
E2, H5, S8, W1.
Engineers, Telephone
A2, B1, C10, F4, H3, M4, P5, S4, A10.
Fireproof Bldg. Lumber
J1.
Fire Fighting Apparatus
J1.
Flux, Soldering
B4, B9, B12, C5.
Fuses, Mica
A4, C8, R2.
Generators, Ringing
H5, L3.
Gloves, Rubber & Leather
M1.
Grounding Devices
C11, P2, R2.
Guy Stretcher
H13.
Hammer, Electric
N13.
Hangers, Cable
C2, C8, E4, H7, L2, N5, R2, S7.
Hotel F8.
Improved Party Line Systems
A9, L3, M5.
Insulate
B4, G2, R5, S7.
Insulators
G2, H2, J1, L6, P2, T3, U1.
Insulated Copper Wire
B4, H1, S7.
Insulated Staples
B5.
Insulating Compounds
G2, J1, N10, S7, B4.
Insurance, Fire and Employers' Liability
B10.
Intercommunicating Systems
K1, M5, S9.
Jacks, Pole
H13, T2.
Linemen's Supplies
C9, H7, K1, K2, S2, W3, P8.
Lumber, Fireproof Building
J1
Magneto Charger
N12.
Meters (Electrical Testing and Measuring)
W1.
Office Supplies
F3.
Ohmmeters
W1.
Parts, Special Telephone
A4, A9, F1, K1, L3, M5, S9, W3
Pins and Brackets
A3, H7, I2, G4, S4.
Platinum
B2.
Pliers
K2, S2, K3.
Pliers, Insulated
S2.
Pliers, Radio & Switchboard
K3.
Pole Pullers
H13, T2.
Pole Pushers
H13.
Pole Straighteners
H13, T2.
Pole Steps
A7, H7, I2, L3.
Pole Line Hardware
C2, H7, J1, K1, L2, M5, N5, W3, S2, W3.
Poles, Treated or Plain
B5, C4, I8, N4, P1, P3, S1, W8, N3, N6, K4, H7.
Preservatives, Wood
A3, I3, I4, P1.
Printing
F3, D1.
Protective Devices
A4, B12, C8, J1, M3, N3, P2, R3.
Pruning Tools
B3.
Radio Supplies
A4, B4, K1, M5, W2.
Rebuilt Telephone Apparatus
B15, E2, P6, R1.
Ringing Equipment
H5, K1, L3, W3.
Service Telephone
A6.
Shelving, Metal
L5.
Sleeves, Paper
C8, R2, R3, S7, B4.
Sleevings—Cotton
B4.
Solders, Sticks, Liquids, etc
B4, B9, C5.
Solder, Self-Fluxing
B4, C5.
Soldering Irons and Tools
P8.
Soldering Flux, Paste, Salts
B4, C5.
Splicing Clamps, Pliers, etc
S2.
Stills, Storage Battery Water
W5.
Strand and Core
B4, C11, H1, R3, R5.
Switchboard Cable
K1, R5, S7, S9, B4.
Switchboards, Telephone
A9, F1, L3, M5, S9, W3.
Tanks, Portable
P8.
Tape (Splicing)
J1.
Telephones
A9, F1, K1, L3, M5, N9, S9, W3.
Telephone Supplies (Jobbers)
I2, K1, M5, N5, N9, W3.
Testing Sets
H5, K1, M5, S8.
Tie Wires
C11.
Timing Devices
C1, V3.
Tips and Terminals
B4.
Tools
I4, K2, S2.
Tool Bags and Boxes
K2.
Torches, Blow
P8, U2.
Trailer, Auto
B6.
Transmitters
A9, F1, K1, L3, M5, S9, W3.
Tree Trimmers
B3.
Trouble Finders
S8.
Trucks, Motor
F7, U3.
Underground Specialties
C9, J1, N10.
Vacuum Cleaners, Electric
E5.
Voltmeters
E2, W1.
Winches
M2.
Wire, Aeroplane
A4, R3.
Wire, Copper, Bare
A4, B4.
Wire, Copper
A4, A5, A7, A8, B4, C11, I1, R3, S7
Wire, Copper Clad Steel
B4, C11, S7.
Wire, Enameled and Magnet
A7, B4, H1, R3.
Wire, Galvanized Iron
A5, A7, I1, P2, R3.
Wire Rope Slings
A7, R3
Wire, Rubber Covered
A7, B4, H1, P2, R5, S7.
Wire, Telephone and Radio
B4.
Wire, Telephone and Telegraph
A7, C11, I1, P2, R3, S7.
Wire, Twisted Pair
C11, P2, B4.
Wire, Weatherproof
A4, A7, B4, C11, I1, P2, R3, S7.

The letter with accompanying number indicates the name of advertiser as given in full in the Alphabetical Index ot Advertisers on the opposite page. *When making known your wants* to any company listed herein, please mention *Telephony*


MEAD-MORRISON
MEAD-MORRISON
(Left) The quickest and cheapest way to set transmission towers on a "big line." A MEAD-MORRISON Underslung Winch No. 911 does the business.
(Right) House-moving holds no terrors for the rigger whose trucks are equipped with MEAD-MORRISON Winches. He can handle difficult jobs like this with ease and dispatch.
MAKE YOUR MOTOR HANDLE AS WELL AS
19
MOTOR TRUCK WINCHES CRANES AND DERRICKS
HANDLE AS WELL AS HAUL"
MEAD-MORRISON
Catalog No. 25

Great Operating Savings

such as Pole Setting Crews cut from 8 men to 3, cable hauling speeded up 50%, transformers and other heavy loads handled with ease and safety —even transmission towers set with our Motor Truck Winches, Cranes and Derricks operating on the idling power of the engine.....Fully described and illustrated in this splendid new catalog. *Write for it today*

MEAD-MORRISON MFG. CO., 526 Prescott Street, East Boston, Mass.

MEAD-MORRISON

When writing to Mead-Morrison, please mention TELEPHONY.

Stromberg-Carlson

Braided Insulation

You have enjoyed watching the children's Maypole dance.

And you have mused over the good imitation of braided insulation which their streamers wove about the Maypole.

But, have you ever stopped to think what braided insulation means in a magneto telephone.

It means insulation that will not unwrap under the heat of the soldering iron and which will not fray with age.

It also means a longer-lived telephone, an ever neatly-wired telephone and a telephone which requires fewer trips by your trouble man.

Now that you know the advantages of braided insulation, you also know why the Stromberg-Carlson No. 896 Magneto Telephone is wired only with conductors having braided insulation.

Ask for Bulletin No. 109

The Stromberg-Carlson No. 896 Magneto Telephones are provided with—

- **High Efficiency, Low Battery consumption Transmitters**
- **Sensitive Receivers**
- **Duratex, Brown Silk Cords**
- **Universal Wiring**
- **Braided Insulation**
- **Bakelite Parts**
- **Convenient Writing Shelf**
- **Durable Finish**
- **Cabled Wiring**
- **"One Screw Type" Ringer Adjustment**
- **Detachable Hookswitch**
- **Short Transmitter Arm**

Stromberg-Carlson Telephone Mfg. Co.

FACTORY and GENERAL OFFICES—ROCHESTER, N. Y., U. S. A.

BRANCH OFFICES:

CHICAGO, ILLINOIS **KANSAS CITY, MISSOURI** **TORONTO, CANADA**

DISTRIBUTORS:

Garnett Young & Co., San Francisco, Cal., Los Angeles, Cal., Portland, Ore., Seattle, Wash.

Scoville Mercantile Company, Atlanta, Ga.

JOBBERS:

Midland Electric Company, Regina, Sask.

Charleston Electrical Supply Company, Charleston, West Virginia

When writing to Stromberg-Carlson Telephone Mfg. Co., please mention TELEPHONY.

Stromberg-Carlson

Automatically Restored

A door loses part of its value when it remains open at times when it should be closed.

This is the reason many doors are equipped with automatic-closing devices.

In like manner, the value of a switchboard signal is, in part, lost if that signal isn't always restored at the proper time.

This is particularly true in regard to the line and the supervisory signals of a magneto switchboard.

Speed with accuracy in magneto switchboard operation requires that all signals must be restored promptly and automatically the instant they have served their purpose.

In Stromberg-Carlson No. 105 Magneto Switchboards the line signals are restored automatically when the operator plugs in to answer a call. In these switchboards the supervisory signals also are restored automatically when the operator throws her listening key to say "number please."

Ask for Bulletin No. 113

The Stromberg-Carlson No. 105 Magneto Switchboard is Equipped with—

Keyboard Supervision
Automatically Restored Supervision
Double Supervision
Positive Supervision
Aligned Supervision
Non-Ring-Through Cord Circuits
Repeating Coil Cord Circuits
Automatically Restored Line Signals
Removable Number Plates
Low Key Shelf
Multi-faced Drop Shutters
Duratex Cords

Stromberg-Carlson Telephone Mfg. Co.

FACTORY and GENERAL OFFICES—ROCHESTER, N. Y., U. S. A.

BRANCH OFFICES:
CHICAGO, ILLINOIS **KANSAS CITY, MISSOURI** **TORONTO, CANADA**

DISTRIBUTORS:
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Scoville Mercantile Company, Atlanta, Ga.

JOBBERS:
Midland Electric Company, Regina, Sask.
Charleston Electrical Supply Company, Charleston, West Virginia

When writing to Stromberg-Carlson Telephone Mfg. Co., please mention TELEPHONY.

Cook Protected and Unprotected Terminals

have received the approval of operating engineers the world over

COOK ELECTRIC CO., Chicago

When writing to Cook Electric Co. please mention TELEPHONY.

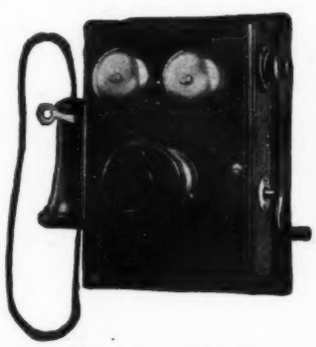
Dependable
Monarch Magneto Telephones

Local Battery Desk Type Telephone

They give the best service over the longest period of time, at the lowest cost of upkeep for new parts, maintenance and battery consumption.

In systems where the disturbances on heavily loaded lines have to be contended with, these Monarch Magneto Telephones, with their specially designed and constructed transmission parts, are at their best.

These telephones are carried in stock ready for immediate shipment. Telephones that have been tried and proved their qualities by past performance.



Residence Type Telephone

We are distributors of drop wire made of COPPERWELD STEEL CO.'S conductor and ELECTRIC CABLE CO.'S high grade insulation.

Compact Type Telephone

Let us ship your next order of Poles, Pole Line Hardware and Supply Material.

Monarch Telephone Mfg. Co.

1027 WEST VAN BUREN ST., CHICAGO, ILL.

When writing to Monarch Telephone Mfg. Co. please mention TELEPHONY.

The Slightest Sound Registers Perfectly

The Unusual Sensitiveness of the Kellogg Transmitter Assures Perfect Transmission at All Times.

A.—Transmitter front punched from heavy brass.

B.—Transmitter bridge or solid back made of steel and dull nickeled.

C.—Hard rubber insulation for terminal.

D.—Rear electrode block, brass dull nickeled.

E.—Transmitter diaphragm made from aluminum.

F.—Heavy white rubber gasket.

G.—Post of rear electrode fastened to rear electrode block by a set screw.

H.—Mica auxiliary diaphragm riveted to aluminum diaphragm.

J.—Space for granulated carbons.

K.—Front electrode with highly polished carbon fastened by screw and nut to diaphragm.

L.—Aluminum ring riveted to the diaphragm holding the mica washer.

M.—Hard rubber insulation.

N.—Rear electrode with highly polished carbon.

Correct in principle—today it still embodies the original design of over twenty-five years ago, known as the reverse back type which prevents the packing of carbon granules, and gives clearer and better transmission.

Built to last—note the sturdy bridge and transmitter front which protect the diaphragm and carbon chamber.

Made for service—over three million of one type are serving happy subscribers in all parts of the world today.

Kellogg transmitters will improve the service of your telephones and please your subscribers.

Have you a supply on hand? Order some today.

KELLOGG SWITCHBOARD & SUPPLY COMPANY

Main Office and Factory: CHICAGO, ILLINOIS

Branch Offices and Warehouses:

COLUMBUS, OHIO
111 N. Front St.

KANSAS CITY, MISSOURI
308 W. 6th St., Traffic Way

PORTLAND, OREGON
383 E. Burnside St.

SAN FRANCISCO, CAL.
1054 Mission St.

When writing to Kellogg Switchboard & Supply Co. please mention TELEPHONY.

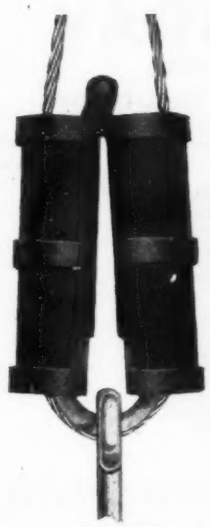
A Handy Tool for The Outside Gang

Enables Crew of Linemen to Place Anchor Guys in About Half the Usual Time Required for This Work.

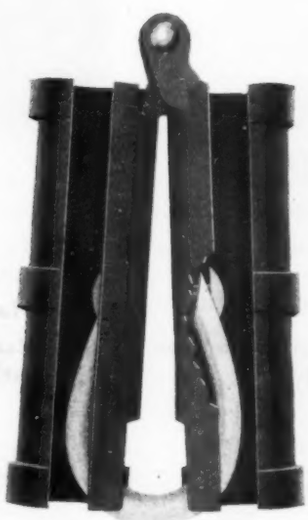
Put a couple of Kellogg Guy Thimble Holders in the tool box of your construction truck—and notice the difference in the installing work when your guy wires are pulled through the eyes of your anchor rods!

You will be pleased at the time saved and you will be surprised at the freedom from danger, always present in the old manner of doing this work.

The use of a guy thimble in the eye of a standard anchor rod makes a larger and more uniform bend in the messenger or guy wire than can possibly be obtained with patented eye anchor rods. There has never been any objection found either to the strength or appearance of the method of guying with guy thimbles. The only criticism of this method of guying is the difficulty and danger to holding the thimble in place while the strain is placed on the guy wire. The thimble has a tendency to slip with the guy wire as the wire is being drawn tight. Usually a man is stationed at the anchor to hold the thimble in place with a pair of tongs or connectors. He is always in more or less danger in this position should the tackle blocks or rope break or the anchor pull out.



Showing Thimble Holder in place



Holder with thimble in place, showing one side of holder cut away to illustrate lug, which keeps thimble from slipping through eye of guy when slack in strand is being pulled.

The Kellogg Guy Thimble Holder completely eliminates the above difficulty. With this new device the guy can be tightened in one-half the time that is now usually taken to perform this work. The Kellogg Guy Thimble Holder is made of heavy cast iron covered with a heavy coating of black enamel. It will last a life time. The first cost is the last. The use of a Kellogg Guy Thimble Holder will mean a saving in labor sufficient to pay for the tool in the placing of three guys.

Guy pulled, tool ready to be removed by hand.

Send us an order for a couple of these Kellogg Guy Thimble Holders at $2.50 each.

The sooner you get them working, the better.

Our folder showing complete installation views of this guy thimble holder will be sent by return mail, if you request it.

Use—Is the Test.

KELLOGG SWITCHBOARD & SUPPLY COMPANY

Main Office and Factory: CHICAGO, ILLINOIS

Branch Offices and Warehouses:

COLUMBUS, OHIO	KANSAS CITY, MISSOURI	PORTLAND, OREGON	SAN FRANCISCO, CAL.
111 N. Front St.	308 W. 6th St., Traffic Way	383 E. Burnside St.	1054 Mission St.

When writing to Kellogg Switchboard & Supply Co., please mention TELEPHONY.

G-R UNPROTECTED TERMINAL

Manufactured in 11-16-26 Pr. Sizes
Hot Galvanized
Weather Proof
Lead Nozzle
Protects Cable
Maple Panel
No Sweating
No Leakage
No Breakage

Reliable Electric Company

3145 Carroll Ave. Chicago, Illinois

AMERICAN CROSSARM & CONDUIT CO.
Main Office — CHICAGO
CROSSARMS THAT LAST
RAINIER" FIR LONG LEAF PINE CREOSOTED
FOURTEEN MILLS MAKING THEM
THIRTY-SIX WAREHOUSES DISTRIBUTING THEM
ASK YOUR DEALER FOR OUR PRODUCT
CREOSOTED WOOD CONDUIT, PINS AND BRACKETS

USE
HEMINGRAY
REGISTERED.
Standard Glass Insulators
HEMINGRAY GLASS CO., Muncie, Ind.

"INDIANA"
Double Galvanized Telephone and Telegraph Wire

Crapo Patents

Non-Peeling
Non-Cracking

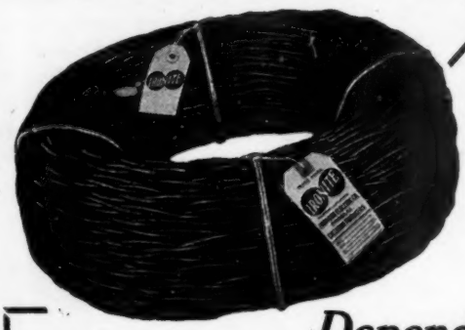
At last the Telephone and Electrical Industry is assured longer life and lower maintenance on galvanized wire construction through our *new* and *improved* patented Galvanizing Process, which insures a wire with Non-Peeling and Non-Cracking Zinc Coating. Now in full commercial production. Carried in stock by Representative *Supply Jobbers.*

Illustration at right shows what happens to old process galvanizing, while illustration at left shows assured results of Crapo process—(patented).

Galvanized Steel Strand

Standard or Commercial, Siemens-Martin, High Strength and extra High Strength Grades

Indiana Steel & Wire Co., Muncie, Ind.



Dependability
Durability
Economy

Ironite

"The Ideal Twisted Pair Telephone Drop Wire"

Ironite has solved the drop wire problems of thousands of Independent Telephone Companies and has helped them to give Maximum Service at a minimum cost.

Its great tensile strength and flexibility combined with the unusual toughness of our special insulation gives it wearing qualities that will outlast any other wire on the market.

Look for this tag

It is attached to every coil of genuine Ironite and is your protection against substitutes of inferior poor quality wire.

Paragon Electric Co.

37 W. Van Buren St. Chicago, Illinois

206 Third Ave., S., Seattle, Wash.
1054 Mission St., San Francisco, Calif.
1612 Maple St., Los Angeles, Calif.
357 E. Burnside St., Portland, Ore.

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

1 Strength
2 Durability
3 Light weight
4 Low cost
5 Safety *and* Adaptability
6 Sightliness *and* Cleanliness

Naugle Poles Meet the 6 Vital Pole Requirements

TALES OF SERVICE

"I have your letter of the 8th inst., and it is with interest that I note how quickly you have completed our order for poles. As a matter of fact, the poles have been coming along so fast that our Superintendent in charge at Redding has asked that shipments be slowed up somewhat; hence our request in our telegram of this morning."

"---and remember them no more"

DECIDE to use proved poles this time, and you can forget them for a mighty long time.

Naugle Poles will serve you this way, just as they have others--country-wide since 1882.

The average life for Northern and Western cedar, untreated, is 12 to 15 years.

And with good butt-treatment, such as we give them, they should last from 50% to 100% longer. Think what a saving this means in uninterrupted service for your subscribers, minimum maintenance work and deferred replacements.

We are ready to ship any size immediately, with or without butt-treatment, from big distribution yards within your reach. Untreated poles shipped within 24 hours.

No appreciable delay in butt-treatment. Vats of more than 2500 square feet capacity are right in our yards; also Pentrex puncturing machines—½ inch creosote penetration guaranteed. Let us quote you our new prices. *Naugle Pole & Tie Co., 5 So. Wabash Ave., Chicago.*

NORTHERN & WESTERN CEDAR
Butt-treated or plain

DISTRICT OFFICES: New York, Columbus, Kansas City, Spokane, Vancouver, Boston
*MAIN YARDS: *Chicago, *Pinconning, Mich., Green Bay, Wis., Vancouver, B. C., *Sand Point, Idaho, *Spokane, Wash.*
**Butt-treating plants and Pentrex machines at these yards.*

NAUGLE POLES

When writing Naugle Pole & Tie Co. please mention TELEPHONY.

FOR THE SMALL EXCHANGE

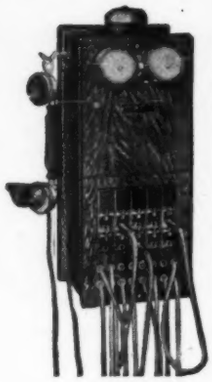
Switchboards to Meet any Need

Built along same high grade lines as larger boards

BURNS EXPRESS UNIT TYPE REMOVABLE COMBINED DROPS AND JACKS

Night bell and code bell feature. Designed to give years of efficient and reliable service.

Tell us your needs, prices and data gladly furnished.



Manufacturer

American Electric COMPANY

State and 64th Streets - CHICAGO, U. S. A.

"COPPERWELD"

DOES NOT RUST

Line Wire, Messenger and Guy, Twisted Pair, Ground Rods, Etc.

Copperweld Steel Company

COPPERWELD IS MADE BY THE MOLTEN WELDING PROCESS

Northern CEDAR POLES Western

Butt Treating Guaranteed Grades

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